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ABSTRACT

Reviewing the trends in employment statistics and higher educational planning in postwar Western Germany, the authors emphasize the role of political policy as they trace the development of the mixed use of both market-orientation and the more traditional research-orientation in preparing higher education students for the job market. After a discussion of the study's presuppositions, structural and quantitative information is presented on the educational system, the labor market, and the economic trends of the recent past. An explanation of the German view of public responsibility for educational planning relates the expansion of the higher education system (universities and short-cycle institutions) to the needs of the labor market and to the ongoing political debate about educational policy. The policy debate, it is noted, revolved around employment issues and has resulted in recent compromises in educational planning in such areas as admissions, job recruitment, and curricular reform. After this overview of the development of higher education and employment, the study concentrates on job requirement forecasts, current placement processes, and the responsiveness of institutions to changes in manpower requirements. The postwar developments are summarized, and the present climate of higher educational planning is described in drawing implications for the future. Finally, West Germany's example is related to that of developing countries, which also often face the conflicts of the social demands for education and the manpower demands of the economy. (JW)

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Higher education and the labour market in the Federal Republic of Germany

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Higher education and the labour market in the Federal Republic of Germany

Ulrich Teichler and Bikas C. Sanyal

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PREFACE

This case study on higher education and employment in the Federal Republic of Germany by Ulrich Teichler and Bikas C. Sanyal is part of a research project on education and employment of the International Institute for Educational Planning. The project is designed to explore the relationship between the employment of graduates and the development of higher education in several countries. Similar case studies have been undertaken in the Sudan, Zambia, Tanzania and the Philippines, and their results have already been published.

These studies, as well as other activities in the research programme of the IIEP, reflect the increasing concern in educational planning with the analysis of results of educational reforms which attempt to relate the world of education more closely to the world of work. It is hoped that the results of such studies could contribute towards policy formulation for education and employment, as well as providing useful methodological insights for investigating similar problems in other countries.

The study on the Federal Republic of Germany reviews the various concepts used by economists and planners in order to analyse the mismatch between education and employment and policy measures to reduce it. The "absorption approach", the "flexibility approach" and the "insertion approach" (strategies within enterprises to utilize qualifications) are presented in the study and provide planners and decision-makers with new insights for an adjustment mechanism.

Although the socio-economic conditions of the Federal Republic of Germany are different from those of developing countries, its information system on the relationship between education and the labour market, as well as the various methods of diagnosis and forecasting used in the Federal Republic of Germany, provide a rich experience to be considered by planners; this is discussed in the final chapter. The comparisons with several countries also make the study useful for researchers and decision-makers of the developing countries.

We are pleased to express our gratitude to the Ministry for Economic Co-operation of the Federal Republic of Germany, whose financial support to the IIEP has made this study possible. The choice and presentation of the facts in this book, and the opinions expressed therein, are the responsibility of the authors, and do not necessarily reflect the views of Unesco or of the IIEP.

Michel Debeauvais
Director, IIEP

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The study was based on experiences and insights developed in previous studies on higher education and the occupational system in the Federal Republic of Germany and in Japan, as well as on a comparative study sponsored by the International Labour Office World Employment Programme. Thanks are due to the staff of the Max-Planck Institute for Educational Research and of the Centre for Research on Higher Education and Work at the Comprehensive University of Kassel for all their suggestions.

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CHAPTER 1

INTRODUCTION

The development of higher education and employment has gained much attention internationally in the last two decades. In the sixties the view was widespread that substantial expansion of higher education was necessary to secure economic growth and social welfare. In the seventies, however, concern grew in many countries about "mismatch" between the increased supply of highly qualified labour and the demands of the labour market which, after all, had not lived up to expectations widely held in the sixties. The new situation calls for consideration of the concepts of economic, social and political factors that influence the development of higher education and the labour market, and also of the rôle played by education and manpower planning in this respect. And here the question has to be raised, what kind of research and information are necessary in this development for a better understanding, and what kind of processes and decisions are likely and also possible or desirable.

The first aim of this study is to be descriptive. Within this general topical frame, the case of the Federal Republic of Germany will be explained. Such a case study might compensate the information gap on the Federal Republic of Germany in publications available in international languages of broad usage. As many international conferences in this field show for example, information about the country is scarce because of language problems[1]. In addition, the case of the Federal Republic has often failed to be taken into serious consideration in international comparative studies, because it does not fit well into widespread concepts and criteria; higher education and employment in the Federal Republic of Germany show many characteristics which cannot be easily incorporated into approaches widely held in research and planning in this field.

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[1] For further information on higher education and employment in the Federal Republic Germany, see especially Klaus Hüfner, Helmut Köhler and Jens Naumann, Higher Education and Manpower Planning in the Federal Republic of Germany, Geneva and Bucharest: International Labour Office and European Centre for Higher Education, 1977 (World Employment Programme Research Working Paper WEP 2-2/WP 7). On higher education see Hansgert Peisert and Gerhild Framhein, System of Higher Education: Federal Republic of Germany, New York: International Council for Educational Development, 1978.

At the same time, it is hoped that this study may also be of interest for those readers in the Federal Republic of Germany who cannot read the huge stock of material available on the educational and occupational systems and their interrelationship[1]. For the German readers, it also may be useful to read an overview which takes into consideration perspectives which play a rôle in the international comparison in this area[2].

The characteristics of higher education and employment in the Federal Republic of Germany lead to the second aim of this study. Some years ago, many research approaches in these fields of study tended to stress a commonness in the patterns of institutions and in the development trends, and did not examine sufficiently the special features of each country. The aim of this study is to show some characteristics of the scene in the Federal Republic of Germany. This somewhat awkward case for international comparison may well be useful for a better understanding of higher education and employment in other countries.

First of all, some characteristics such as research orientation on the part of institutions of higher education, the relative specialization of courses and occupational orientation along with the homogeneity of universities, might be worth examination as to whether they are outmoded peculiarities or reasonable alternatives to widespread concepts of educational planning[3].

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[1] For bibliographical information see Manfred Bayer and Gerhard Ortner, in cooperation with Peter Lichtenberg, "Gestaltungs- und Steuerungs- probleme der Hochschulen im Bildungs- und Beschäftigungssystem" (Systematisierte Auswahlbibliographie), in U. Lohmar and G. E. Ortner, eds., Die deutsche Hochschule zwischen Numerus Clausus and Akademikerarbeitslosigkeit, Hannover: Schroedel, 1975, pp. 374-504; Dirk Hartung, Reinhard Nuthmann and Ulrich Teichler, Selected Bibliography on "The Changing Relationships between the Educational and Occupational Systems," Berlin: Max-Planck-Institut für Bildungsforschung, 1976, mimeogr.; Otto Friedrich Wegand, Hochschulreform Hochschulgesetzgebung Studienreform in der BRD: Eine Literaturübersicht, 7 Vols., Kiel: Universitätsbibliothek, 1970-78.

[2] On higher education and employment in the Federal Republic of Germany in the German language see especially Lohmar and Ortner, eds., op. cit.; Reinhard L. F. Strangmeier, Der Arbeitsmarkt für Akademiker, Frankfurt and New York: Campus, 1978; Dirk Hartung et al., Aspekte der Studienreform 1 Arbeitsmarkt, Beruf, Qualifikation, Hamburg: Arbeitsgemeinschaft für Hochschuldidaktik, 1979 (Blickpunkt Hochschuldidaktik, No. 56) Dirk W. Busch et al., Analyse der Tätigkeitsfelder und beruflichen Qualifikationen von Wirtschafts-, Sozial-, Ingenieur- und Naturwissenschaftlern, Bremen 1979, mimeogr.; Ulrich Teichler and Friedrich Voss, Materialien zur Arbeitsmarktlage von Hochschulabsolventen, Kassel: Wissenschaftliches Zentrum für Berufs- und Hochschulforschung an der Gesamthochschule Kassel, 1979 (Arbeitspapiere, No. 6).

[3] See chapter 4; also Ulrich Teichler, "Problems of West German Universities on the Way to Mass Higher Education", Western European Education, Vol. 8, Nos. 1-2, 1976, pp. 81-120.

Also, due to some specific historical reasons, the Federal Republic of Germany has developed an interesting mix between market-oriented and planned relationships of higher education and employment. The dominant political approach is neither to submit adjustment processes more or less to market forces, nor to choose a certain consistent philosophy of higher education planning, but rather to seek for a compromise of moderate planning. Also it must be mentioned that the political and planning agencies in the Federal Republic of Germany face stronger conflicts between a manpower approach and social demand approach in higher education policy than in many other countries, for the Constitution guarantees open access to higher education for qualified applicants and at the same time the government has a very strong position in shaping higher education and the labour market for graduates.

Quite a variety of different research approaches on the relation of higher education to employment have been developed. In spite of the shortcomings of many theories and surveys available, it may be useful to examine the variety of rationales to be found in studies of this area[1].

The third aim of this study is to contribute to the discussion on research approaches in this field. In some previous studies it has been shown that the prevailing research approaches on the inter-relationship of higher education and the labour market take certain concepts of occupational requirements for granted and that they share a harmonious functionalist view on possible adjustment processes that take place between higher education and the employment system, which we consider worthwhile being questioned[2]. This case study is not designed as a systematic examination of the validity of a research approach, but the collection and presentation of information has undoubtedly been influenced by some basic assumptions. This study will attempt to show whether it is useful to take into consideration such views for analysis of higher education and employment.

The study has been conducted within the framework of the research project "Graduate Employment and Admissions Policy in Higher Education" of the International Institute for Educational Planning (Unesco). The project sets its focus on the explanation of factors which have caused the "mismatches" between higher

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[1] See chapter 6. Among publications in the German language see Arbeitsgruppen des Instituts für Arbeitsmarkt- und Berufsforschung und des Max-Planck-Instituts für Bildungsforschung, Bedarfsprognostische Forschung in der Diskussion, Frankfurt: Aspekte, 1976; Lohmar and Ortner eds., op. cit.; Hartung et al., op. cit.; Ulrich Teichler, ed., Hochschule und Beruf: Problemlage und Aufgaben der Forschung, Frankfurt and New York: Campus, 1979; Cf. also the short overview in Ulrich Teichler, "Higher Education and Employment in the Federal Republic of Germany: Trends and Changing Research Approaches from the Comparative Point of View", in H. Wasser, ed., Economics of Higher Education: A Comparative Perspective of Policy and Dilemma, New York: City University of New York, Center for European Studies, 1978, pp. 32-66.

[2] Cf. Ulrich Teichler, Dirk Hartung and Reinhard Nuthmann, Higher Education and the Needs of Society, Windsor, NFER Publishing Company, 1980 (forthcoming).

education and employment and also the rôle an information system on the education-employment relationship could play in higher education planning[1]. The IIEP project comprises mainly country studies on the one hand, which follow broadly the same set of assumptions and methods, and, on the other, theoretical and technical studies designed to specify or to challenge the major approaches of the project. As for this case study on the Federal Republic of Germany, it is a combination of both, for it serves to explain the situation in one country and, at the same time, to discuss the general approach of the project.

After a short presentation of concepts underlying this study (chapter 2), structural and quantitative information will be presented on education, labour market and economy (chapter 3). This is followed by an explanation of the characteristics of higher education and employment in the Federal Republic of Germany (chapter 4). The major part of this study concentrates itself on the post-war development of higher education and employment, explaining debates and planning related to it (chapter 5). Not less important is the overview on requirement forecasts and research approaches on higher education and work, as well as their findings (chapter 6). Two additional chapters inform the reader about the process of transfer from higher education to employment (chapter 7) and the impact of the changing higher education-labour market link in recent higher education and manpower planning, curricular development and students' attitudes (chapter 8). There follows a short summary of the findings and some of their implications (chapter 9). Finally, the results and the implications for educational planning in developing countries within the framework of the IIEP project are discussed (chapter 10).

[1] See especially Bikas C. Sanyal, Some Explanatory Notes on the Project "Admissions Policy and Graduate Employment", Paris : IIEP, 1976, mimeographed (IIEP/RP/13-CS. 23A).

CHAPTER 2

SOME UNDERLYING ASSUMPTIONS

Even a survey which is supposed to describe primarily the development of higher education and employment in a given country ought to discuss which theoretical approaches are most appropriate in this area, for any gathering of information will be influenced by the underlying assumptions. In this study, the impact of such assumptions on perceiving reality has to be considered all the more, because it also analyses the different research and planning approaches and their effects on higher education policy and planning in the country under consideration. Therefore, we shall explain briefly some underlying assumptions which played a rôle in this study.

The assumptions may be explained in the face of dominant approaches on higher education and the employment system. Most research and political approaches in this area assume that (i) it is principally possible to establish the manpower requirements precisely and in a politically neutral fashion; (ii) a basically harmonious "equilibrium" could be reached between the competences required by the employment system and the competences attained, to a large extent, by means of education; (iii) the requirement for competences or qualifications as such is an independent factor shaping higher education and manpower policy.

Many studies on the relationship between higher education and employment rest on the assumption that it is possible, in principle, to determine quite clearly the existing manpower requirements. According to this view, there might be lack of information and there may be uncertainties about the future development, still it is basically a question of appropriate theory, good methods and a wealth of information whether one establishes the manpower requirements. Political debate might play a rôle in the process of fulfillment of different goals to satisfy manpower requirements and at the same time to meet demand for education on the part of individuals, but the concepts of manpower requirements are considered politically neutral. On the basis of these assumptions the major disputes centre around the question, whether the market, the employers or the professionals are the best source for determining the requirements, whether the balance between requirements and attained competences can be reached best through market processes or through education and manpower planning. Those counting on the "invisible hand" of the market face the difficulty that only a perfect market mechanism would show what the existing requirements are; they wish to design

the reality according to their models in order to know the truth and to guarantee appropriate output of the education system. Those trusting in the "visible hand" of planning put their confidence in the validity of available information and on the power of planning to shape the development correspondingly.

Knowing the pitfalls of these approaches, it seems more convincing to assume that there can be only an array of different perceptions of manpower requirements. They might of course vary according to the quality of their theoretical basis and the range of information, and in this respect are open to scholarly criticism. But beyond this, there are different scopes in the perception of needs of the occupational system. This applies, for instance, to the evaluation of appropriateness of the competences of the existing work force, to the system's need for innovation, to the socio-political basis of the present organization of work, to the range of concept of occupation (whether it includes the dominant work tasks only or the career and the competences needed to cope with the work on enterprise level or in the wider social set-up surrounding a person's work) and finally to potentials of substitution in the labour market. Therefore, concepts of manpower requirements are controversial. Thus, a "mismatch" between demand and supply of college-trained manpower in the labour market as such cannot be taken as an indicator of a corresponding mismatch of the qualification requirement of the employment system and the competences of the labour force.

Second, it is assumed in many research and policy approaches that in principle a harmony could be established between the manpower requirements and the attainments of the labour force. Political efforts should be directed towards the establishment of conditions favouring such an "equilibrium", for example, by means of building up a good system of information and guidance, supporting market forces or establishing more sophisticated planning. As opposed to it, we maintain that it is more appropriate to consider discrepancies between the requirements and the competences of the labour force to be a matter of course which always has to be expected. They cannot be attributed to the ups and downs of market cycles around the conceived "equilibrium", but have other causes. For instance, the uncertainty of future requirements might lead to risk strategies which, almost certainly, produce either high or low supply; also the rationalization of work might reduce the competences required for the work tasks but, at the same time, may increase the requirements to cope with the environment of the organization of work, the labour market, the political setting, the means of production etc. Further, the unequal social rewards of success in education support decisions in favour of a high level of education and encourage the trend towards presumed "overqualification". Given the variety of concepts about manpower requirements and the discrepancies between the presumed requirements on the one hand and the competences of the labour force on the other, it is not surprising to find that the patterns of incentives, the views held on labour market needs and the objectives of higher education do not directly refer to required competences or demand-supply relationship as would be the case according to widespread assumptions. Rather, they reflect the varied conceptions of requirements, the systematic discrepancies and the imperfection in channelling the competences according to presumed manpower requirements.

This fact might be explained by the relationship between qualification and status

distribution, which is the subject of a previous study[1]. According to the findings there, it has been typical to industrial societies over a long period that the required qualifications were stimulated by the process of social advancement, and at the same time social inequality was legitimized by the emphasis of the importance of varying individual performance for the functioning of society. Thus, a close interdependence of qualification and status distribution developed.

This interdependence could not remain stable in the long run. For one thing, it is a mechanism that works in only one direction: under conditions of assumed shortages of qualified manpower, the openness of the educational system can be increased. But if an oversupply seems to be developing, then the opposite education policy of limiting the system's openness would cast doubt on the legitmization of social inequality based on just reward for individual performance. Second, qualification and status distribution can be attuned to one another and thus controlled only if insight into these processes is limited to certain small sectors of the population. Once large numbers of young people begin to take advantage of higher education, and this with a considerable degree of success, what we see is a transition to a new phase of development.

At this point, education and manpower policy are confronted with the following alternatives: either individual qualifications are attuned to assumed requirements at the price of sacrificing the legitimization of social inequality through education, or status distribution according to success at school is held to and individual qualifications no longer match up with employers' demands. It is the latter of these two alternative developments that seems to be proving stronger in many countries: Status distribution is rapidly becoming the dominant factor in education and manpower policy.

Of course, the underlying assumptions explained above affect the evaluation of education and manpower policy. If varying perceptions of qualification requirements are to be taken for granted, and if no "equilibrium" of demand and supply will be expected and manpower policy will be conceived to be reacting not solely on presumed manpower requirements, then it is hardly possible to make such sweeping statements as "the failure of educational policy", that had become the fashionable expression in the seventies. Those expressing such criticisms seem to consider themselves very wise, as far as appropriate solutions are concerned. But probably it is more adequate to look on this history of educational policy and planning as a lesson in the difficulties of perceiving the needs of the society and the consequences of changes in the educational system.

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[1] Ulrich Teichler, Dirk Hartung and Reinhard Nuthmann, Hochschulexpansion und Bedarf der Gesellschaft, Stuttgart: Klett, 1976) see especially U. Teichler, "Kogakureki Snakai - The Modern Education Society from the Comparative Point of View" Asian Profile, Vol. 5, No. 5, 1977, pp. 487-506; U. Teichler, "Bildungssystem, Beschäftigungssystem und soziale Struktur," Deutsche Universitätszeitung, No. 17, 1978, pp. 534-539; U. Teichler, Der Wandel der Beziehungen von Bildungs- und Beschäftigungssystem und die Entwicklung der beruflichsozialen Lebensperspektiven Jugendlicher, Kassel: Wissenschaftliches Zentrum für Berufs- und Hochschulforschung an der Gesamthochschule Kassel, 1978 (Arbeitspapiere, No. 2).

According to the assumptions presented above, it is unlikely that a large supply of college-trained persons on the labour force indicates anything but a market cycle and would disappear soon. If that is so, then it might be interesting to observe what the consequences will be: An absorption without any substantial change in education and work? An increased competition in education? A loss of value of credentials? Or an active rôle of expanded higher education to shape the work and social hierarchy? The outcomes of an "adjustment" process to the large supply of college-trained labour might offer new insight as far as the needs of society for higher education are concerned.

At this stage, it might be necessary to point out that these considerations are based on analyses of highly industrialized countries. There are three reasons to believe that they are not easily applicable to developing countries: First, the economic and occupational structure of an industrialized country offers more possibilities for absorbing "oversupply" of graduates in a comparatively smooth system of vertical substitution and offers more plausibility to designing a dominant strategy of flexibility instead of a skill-oriented policy. Second, the affluence of an industrial society permits more readily taking into account of other goals than economic growth. Third, there are more limitations in industrial countries in employing a distinct and clearcut policy for substantial change under the existing conditions of a complex socio-political system.

As mentioned before, we do not intend to test the appropriateness of the underlying assumptions in this case study. Rather, they were presented here in order to explain what kind of information will be given in more detail. According to the assumptions, the following questions played a major rôle in preparing the case study:

1. What concepts of manpower requirements did develop in the Federal Republic of Germany and why do they differ from each other?
2. How and why do concepts of manpower requirements change in the process of higher education expansion?
3. What changes in the inter-relationship of education and work can be observed as a consequence of the high supply of college-trained labour? Does this large supply affect the social hierarchy?
4. What changes of goals in higher education and manpower policy take place under the conditions of a large supply of college graduates on the labour market?
5. How does the rationale of higher education policy and planning modify itself because of a growing awareness of the limits of knowledge and the limitations of the ability to shape reality and to foresee the consequences of such changes?

CHAPTER 3

THE EDUCATION AND THE EMPLOYMENT SYSTEMS: STRUCTURES AND QUANTITATIVE DEVELOPMENT

ECONOMY-POPULATION-EMPLOYMENT

In the Federal Republic of Germany remarkable economic expansion has lasted for many years. The gross national product rose from DM 100 billion in 1950 to DM 302 billion in 1960, DM 686 billion in 1970, and finally DM 1,193 billion in 1977.

During the fifties, the post-war economic construction reached an impressive pace. The GNP doubled in constant prices during this period of "economic miracle", and the unemployment quota decreased from about 10 per cent to one per cent, although about 12 million refugees and deportees had to be reintegrated.

In the sixties, economic growth and full employment also persisted. The annual growth of GNP (in constant prices) went down in this period of stability from more than 6 per cent during the fifties to an average of 4.4 per cent which was comparable to the average growth rates in Western Europe. There was, however, no single continuous economic development: the first major recession was indicated by a 0.2 per cent decline of the GNP in 1967. Shortage of labour arose during the sixties; the demand was satisfied by foreign workers whose number rose from 0.3 million in 1960 to 1.9 million in 1970[1].

From 1970 to 1977, the average increase of GNP (in constant prices) slowed down to 2.5 per cent; in 1975, a decline of 2.5 per cent took place. Given the world-wide effect of the rising oil prices since 1973, this growth cannot be considered to be extraordinarily low[2]; several revaluations of the German Mark, on the contrary, seem to indicate a relatively stable development. Under the prevailing economic system often referred to as Soziale Marktwirtschaft (social market

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[1] Hüfner, Köhler and Naumann, op. cit., p. 24.

[2] The growth of GNP (in constant prices) from 1970 to 1977 in selected countries: Japan 45 per cent, France 32 per cent, United States 24 per cent, Federal Republic of Germany 19 per cent, Britain 13 per cent, Sweden 11 per cent, Switzerland 6 per cent.

economy), however, experts consider a growth rate of 3.5 per cent necessary to avoid an increase in unemployment[1]

In 1977, the GNP per capita in the Federal Republic of Germany was US $6,830, slightly lower than that of the United States ($7,020)[2]

Policy and planning of higher education reflected the economic development of the Federal Republic of Germany. Three major arguments can be found. First: for many years human capital theories spurred a political debate as to whether an expansion of higher education was necessary to guarantee future economic growth. Second: many international bodies and commissions argued that an affluent society such as the Federal Republic of Germany ought to offer higher education opportunities primarily according to social demand[3]. Third: the recent decline of growth rates supported an increased concern about the utilization of the growing number of highly qualified manpower.

The Federal Republic of Germany had 50 million inhabitants in 1950, 55.6 million in 1960, 60.7 million in 1970 and 61.6 million inhabitants in 1977 (including inhabitants of West Berlin)[4]. The resident population grew at a very low rate until 1974, but has continued to decline since then. The prior growth has to be attributed to a large extent to migration (foreign workers, immigrants from the German Democratic Republic and East European countries). The decline in the population began in 1974 as the active recruitment of foreign workers was discontinued due to the economic crisis following the oil price hike. Of the resident population in 1977, 4.1 million were foreigners.

The figures for live births in the Federal Republic of Germany show rapid changes within a short period. They rose from about 0.8 million in the early fifties to 1.07 millions in 1964 and then fell fairly regularly to 0.6 million in 1975. According to UN statistics published in 1977, the number of births for each 1,000 inhabitants is at its lowest now in the Federal Republic of Germany (9.7). Since 1972, an excess of deaths over births can be observed. While in many other industrialized countries a peak in the curve of births in the post-war period can be found in the fifties, the "baby boom" in the Federal Republic of

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[1] This view has been, for instance, expressed in an article which summarized surveys and projections of the Institut für Arbeitsmarkt- und Berufsforschung: "Konsequenzen des Bevölkerungsrückganges für den Arbeitsmarkt", Materialien aus der Arbeitsmarkt- und Berufsforschung, No. 5/1976.

[2] In seven countries, the GNP per capita in 1977 was higher than in the Federal Republic of Germany: Qatar, Kuwait, Switzerland, Sweden, Norway, Denmark and the United States.

[3] For a recent example, see International Council for Educational Development, Access to Higher Education: Two Perspectives, New York: ICED, 1978. See also OECD, Reviews of National Policies for Education - Federal Republic of Germany, Paris 1973.

[4] For additional data, see Hüfner, Köhler and Naumann, op. cit., pp. 19-23.

Germany came a decade later. This "delay" has important consequences: An expansion of secondary and tertiary education due to demographic factors has to be expected at a time when economic problems have increased and the public mood is less favourable to educational expansion and expenditures than a decade ago. In addition, the number of youth transferring from education to work reaches its peak at a time when unemployment is likely to be much higher than in the early seventies.

The percentage of the inhabitants belonging to the working age population (15-64 years old) was 68 per cent around 1950 and 1960, but it fell to 64 per cent in 1975. These figures are very close to the average in industrial countries. The life expectancy of 67.9 years for men and 74.4 years for women (1975) in the Federal Republic of Germany is - according to UN statistics - slightly lower than in most other highly industrialized countries.

The labour force in the Federal Republic of Germany rose, as Table 1 shows, from 22 million in 1950 to more than 26 million in 1960 and has remained more or less constant until now. In 1977, the labour force comprised 41 per cent of the resident population. The percentage of women among the labour force remained almost constant: according to the censuses and microcensuses since 1950, 36 to 37 per cent of the labour force were female.

Unemployment had been considered a marginal problem in the Federal Republic of Germany from 1959 until 1973, for the official unemployment quota remained almost constantly below one per cent and the registered vacant positions exceeded the number of unemployed persons. Since 1974, however, the official unemployment quota has been about 4 per cent (annual average), and the number of registered unemployed persons about four times as high as the number of registered vacant positions. The quota of youth unemployment (less than 25 years old) was 5.3 per cent in 1976 as compared to 4.0 per cent of the total labour force[1].

Employment in the Federal Republic of Germany is usually registered according to employment status, economic sector and occupational group. Figures on employment status are compiled in Table 2. In 1976 the number of Angestellte (salaried employees) and Beamte (civil servants) together surpassed the number of Arbeiter (manual workers) for the first time[2].

The development of employment in industrial sectors in the Federal Republic of Germany followed the general trend of industrial societies. As Table 1 shows, the percentage of persons employed in the primary sector (agriculture, forestry, fishery) declined from 24.6 per cent in 1950 to 6.0 per cent in 1977. The share of persons

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[1] Rudolf Leupoldt and Konrad Ermann, Arbeitsmarktstatistische Zahlen in Zeitreihenform: Jahreszahlen für die Bundesrepublik Deutschland - Ausgabe 1978, Nürnberg: Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit, 1978 (Beiträge zur Arbeitsmarkt- und Berufsforschung, No. 3.1), p. 153.

[2] In the Federal Republic of Germany, only tenured civil servants belong to the category of Beamte, whereas non-tenured civil servants as well as employees in private enterprises belong to the category of Angestellte.

TABLE 1 Labour Force in the Federal Republic of Germany, 1950-1977

Year	Labour force (in 1,000) (1)	Number employed (1,000) (2)	Employed in percent of (2) in Agriculture forestry (3)	Production (4)
1950+	21,960	20,376	42.6	42.6
1955+	24,165	23,230	18.5	46.6
1960	26,518	26,247	13.8	47.7
1965	27,038	26,887	10.7	48.8
1970	26,817	26,668	8.5	48.8
1975	26,424	25,350	7.2	45.9
1977	26,855	25,884	6.0	46.0

Source: K. Hüfner, H. Köhler and J. Naumann, Higher Education and Manpower Planning in the Federal Republic of Germany, Education and Employment Research (Industrialized Countries), ILO/CEPES Joint Project, June 1977, p. 24 (1950-75); Bundesminister für Bildung und Wissenschaft, Grund- und Strukturdaten 1978, Bonn, 1978 pp. 172-175.

employed in the tertiary sector (trade, services, government) grew in the same period from 32.3 per cent to 48.0 per cent. In comparison to other western industrial countries - see Table 3 - the proportion of persons working in the production sector in the Federal Republic is unusually high. According to forecasts by the Institute of Labour Market and Occupational Research of the Federal Employment Agency, only a small decline in the percentage of persons employed in the secondary sector is likely in the eighties (1977: 46.0 per cent, 1990: 43.6 per cent[1]). The important rôle of the production sector in the Federal Republic of Germany has sustained a strong vocational orientation of the education system as well as employers' reluctance to favour expansion of higher education.

Table 4 presents an overview of the development of occupational groups. The scheme of occupational groups in the Federal Republic of Germany aims at avoiding the mix of occupational activity and relation to the production process on the one hand and the employment status on the other hand. This is typical for groupings of occupations in many other countries, too. The data on occupational groups indicate more clearly than the data on the economic sector (Tables 1 and 3) a decline of active persons in production processes in all major categories (Table 4, categories I-IV); altogether the share of persons working in production processes was 57 per cent in 1950, 49 per cent in 1961, 41 per cent in 1970 and 34 per cent in

[1] Wolfgang Klauder and Peter Schnur, "Mögliche Auswirkungen der letzten Rezession auf die Arbeitsmarktentwicklung bis 1990", Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 9, No. 3, 1976.

Employed in percent of (2)					
Trade, transportation (5)	Services (6)	Government and private households (7)	Unemployed number (1,000) (8)	In percent of labour force (9)
14.3	18.4		1,584	7.2
15.9	19.0		935	3.9
17.2	12.7	8.6	271	1.0
17.6	13.5	9.3	147	0.5
17.5	15.4	9.8	149	0.6
18.0	17.4	11.5	1,074	4.1
17.4	17.3	13.3	1,030	3.8

+Excluding Berlin (West)

1976. At the same time, the percentage of active persons in services, distribution, administration and planning rose from 34 per cent to 42, 51, and 56 per cent respectively.

Occupational statistics indicate in most cases an increase of persons employed in those categories where the share of university-trained people has traditionally been relatively high, and a reduction of persons employed in those categories in which the number of university graduates used to be small. As discussed below, this shift in the occupational structure, however, was - as in other industrialized countries - smaller than the increase in the percentage of the labour force holding a university degree.

TABLE 2 Employment Status of the Employed Persons by Sex, 1976

ployment Status	Total (in thousands)	Percentage	Male (in thousands)	Percentage	Female (in thousands)	Percentage	Female Total
bständige (self-employed)	2,331	9.1	1,844	11.4	487	5.1	0.21
thelfende Familienangehörige npaid family workers)	1,188	4.6	168	1.0	1,020	10.6	0.86
amte (civil servants)	2,211	8.6	1,859	11.5	352	3.7	0.16
gestellte (salaried employees)	9,058	35.2	4,419	27.3	4,639	48.4	0.51
beiter (manual workers)	10,965	42.6	7,882	48.7	3,083	32.2	0.28
tal	25,752	100.1	16,172	99.9	9,580	100.0	0.37

rce: Statistisches Bundesamt (micro-census 1976)

TABLE 3 International Comparison of Labour Force, 1970

	Percentage of employed persons				
onomic Sector	Fed. Rep. of Germany	France	Italy	United States	Japan
riculture	8.9	13.1	18.7	4.2	19.3
oduction	48.6	39.9	41.7	31.0	33.9
ade, Services	31.7	35.2	29.3	45.5	46.7
il Service	10.8	11.8	10.3	19.3	
tal	100.0	100.0	100.0	100.0	100.0

rce: Based on K. Hüfner and J. Naumann, Konjunkturen der Bildungspolitik in der Bundesrepublik Deutschland, Band I: Der Aufschwung (1960-1967), Stuttgart: Klett, 1977, p. 45; U. Teichler and Y. Teichler-Urata: Der Arbeitsmarkt in Japan, Göttingen: Schwartz, 1975, p. 63.

TABLE 4 Employed Persons by Occupational Group, 1950-1976

pational Group	(in thousands)				Percentage			
	1950	1961	1970	1976	1950	1961	1970	1976
Occupations related to natural and mineral products	5,712	4,031	2,244	1,795	24.3	15.2	8.5	7.0
Occupations related to intermediate products, materials and tools manufacturing	1,226	1,864	1,783	1,267	5.2	7.0	6.8	4.9
Occupations related to production of consumer goods	2,325	2,233	1,932	1,449	9.9	8.4	7.3	5.6
Construction, repairs and finishing of products	4,139	4,791	4,895	4,210	17.6	18.1	18.6	16.4
Services (person or community related)	1,257	1,572	2,514	3,076	5.3	5.9	9.6	11.9
Services (product-related)	2,611	2,936	2,613	2,653	11.2	11.1	9.9	10.3
Distribution, administrative and planning professions	4,203	6,658	8,211	8,823	17.9	25.1	31.2	34.3
Independent professions	2,015	2,441	2,130	2,478	8.6	9.2	8.1	9.6
Total	23,489	26,527	26,323	25,752	100.0	100.0	100.0	100.0

ce: Based on Rudolf Leupoldt and Konrad Ermann, Arbeitsmarktstatistische Zahlen in Zeitreihenform: Jahreszahlen für die Bundesrepublik - Ausgabe 1978, Nürnberg: Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit, 1978, pp. 80-1.

EDUCATION STRUCTURE AND QUANTITATIVE DEVELOPMENT OF EDUCATION

The school system in the Federal Republic of Germany has retained a basically vertical structure. After four[1] years of primary education for all (which had been introduced after World War I) at the Grundschule, pupils have to choose at the age of 10 which of the following to attend:

- the Hauptschule or main school, traditionally the integrated part to the Volksschule like the primary school. After finishing nine years of full time schooling, these pupils typically attend part-time vocational schools - often combined with apprenticeship training - until the age of 18;
- the Realschule, the intermediate type of secondary schools, normally leading to technical schools etc. and traditional prerequisite for entering intermediate positions in the occupational hierarchy;
- or the Gymnasium, the academic track of the secondary schools, typically preparing the students for university education.

The educational structure as well as the length of schooling is demonstrated in Figure 1.

The vertical structure, however, has been "softened" in a process of many smaller reforms of the educational structure as well as of the opportunities to transfer. The major changes have been[2] (i) the establishment of a variety of "second routes", i.e. for main school pupils to reach Realschule-level, for students having attended Realschule to reach the Abitur, the traditional certificate for a successful completion of Gymnasium, and the establishment of several other regulations which admit the transfer from lower to higher tracks; (ii) the introduction of an orientation period in the 5th and 6th grades; thereby the pupils' opportunity to shift from one level to another ought to be eased[3]; (iii) the establishment of comprehensive schools - along with the traditional system - in some states of the Federal Republic.

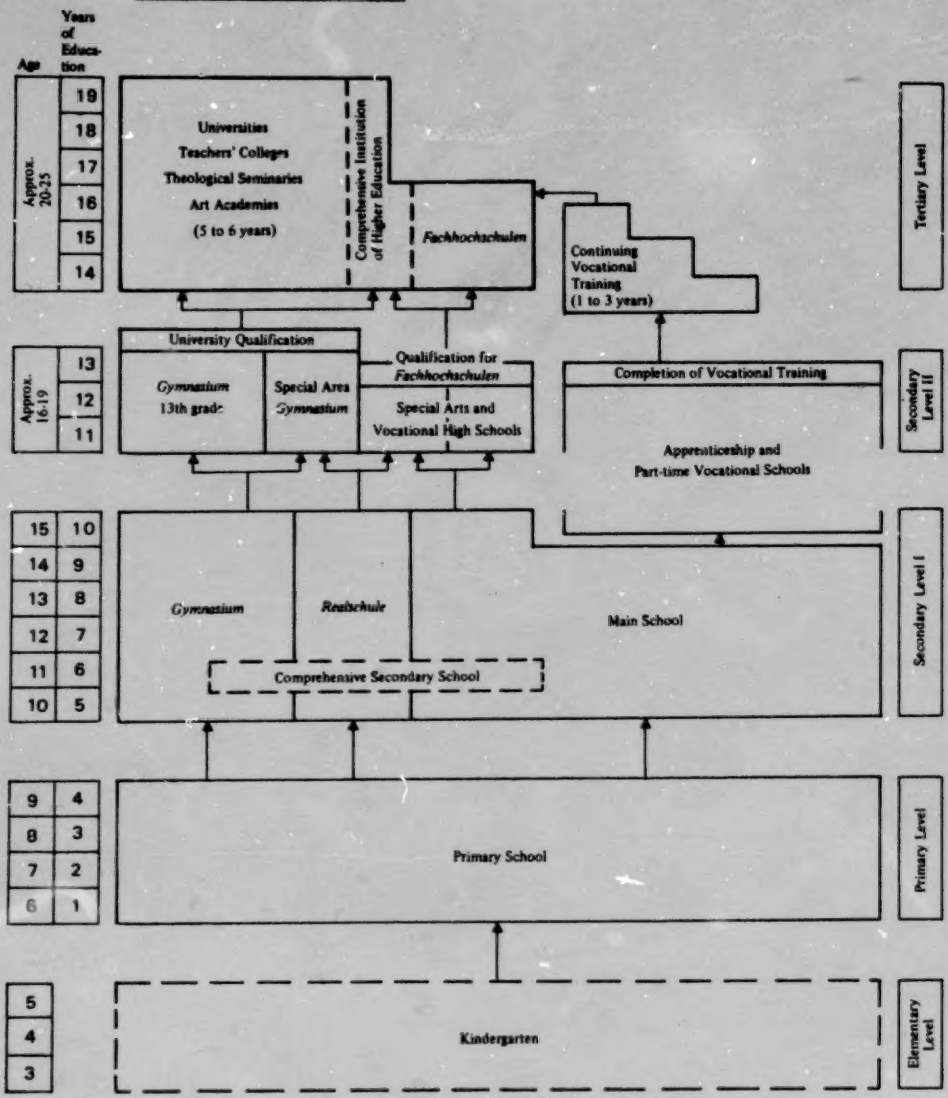
Table 5 shows a remarkable expansion of the intermediate and the academic tracks of secondary education as well as an expansion of full-time and higher vocational education, whereas the number of students in main school and part-time vocational school remained fairly constant. It is very difficult to establish exact quotas of attendance of the different tracks because of the variety of institutions, the high percentage of pupils who have to repeat a grade because of

[1] Six years in the states of Berlin (West) and Bremen.

[2] Cf. Bundesminister für Bildung und Wissenschaft: Report of the Federal Government on Education 1970, Bonn 1970; Deutscher Bildungsrat, Bildungskommission, Bericht 1975: Entwicklungen im Bildungswesen, Bonn 1975.

[3] In some cases an integrated orientation phase has been established: pupils attend partly common and partly level courses in the same school. In most cases, however, the pupils take one of the three tracks but can transfer more easily than previously.

Figure 1. The educational system[1]



[1] The structural chart does not indicate quantitative proportions of the individual institutions. The arrows indicate the most common transitions.

Source: H. Peisert and G. Framhein, Systems of Higher Education: Federal Republic of Germany, New York: International Council for Educational Development, 1978, p. 9.

TABLE 5 Number of Pupils and Students in Educational Institutions 1950-1975 (in thousands)

Institution	1955	1960	1965	1970	1975
1. Kindergarten, Nursery etc.	-	890	1,037	1,255	1,650
2. Primary School (Grundschule)	2,722	3,097	3,453	3,978	3,888
3. Special school	188	143	192	322	394
4. Main schools (Hauptschule)	2,223	2,122	2,112	2,369	2,536
5. Realschule	436	431	571	863	1,147
6. Gymnasium, 5th-10th grade	713	642	760	1,062	1,394
7. Gymnasium, 11th-13th grade	149	211	198	317	469
8. Comprehensive Schools	-	-	-	-	166
9. Evening schools, (Kolleges)	-	9	15	25	38
Total: school for general education (2-9)	6,361	6,655	7,302	8,937	10,033
10. Part-time vocational schools	2,302	1,662	1,780	1,600	1,636
11. (Berufsfachschule) Vocational school	156	139	167	209	299
12. (Berufsaufbauschule) Vocational extension school	-	-	53	40	28
13. (Fachoberschulen, Fachgymnasien) Vocational high schools	-	-	-	59	119
14. Schools for technicians etc. (Fachschulen)	148	142	146	164	205
Total: Vocational schools (10-14)	2,604	1,943	2,146	2,072	2,286
15. Engineering colleges, short-cycle institutions +	36	44	61	100	145
16. Universities etc. ++	152	247	308	422	696

Source: Helmut Köhler, Der relative Schul- und Hochschulbesuch in der Bundesrepublik Deutschland 1952-1975, Berlin: Max-Planck-Institut für Bildungsforschung, 1978, pp. 160-1 (Materialien aus der Bildungsforschung, No. 13); Data on Kindergarten etc. from Bundesminister für Bildung und Wissenschaft, Grund- und Strukturdaten 1977, Bonn, 1977, p. 8.

+ From 1955 to 1965: Ingenieurschulen; 1970 and 1975 : Fachhochschulen

++ Including teacher training colleges, colleges of fine arts, and comprehensive universities.

low achievement, and high number of transfers. Of those finishing full-time secondary schooling, 75 per cent left the main track in 1960, 63 per cent in 1970 and 49 per cent in 1977; in the same period the percentage of youth completing the intermediate track, or its equivalent, grew from 13 to 25 and 31 per cent. And those completing the academic track, or other institutions which offer the opportunity of later enrolment at institutions of higher education, rose from 9 to 12 and finally 20 per cent[1].

Table 6 shows that the secondary school leavers having completed the academic track and the higher vocational track rose from 5.7 per cent of the corresponding age group in 1960 to 11.2 per cent in 1970 and 20.2 per cent in 1975. This quota reached 23.7 per cent in 1977[2].

As mentioned above, several "second routes" and equivalences were established to open access to higher education. There exist now dozens of ways of gaining the educational prerequisites for access to higher education[3]. According to the Federal Ministry of Education and Science 66 per cent of beginner students in 1976 had succeeded in the Abitur, the final examination at a (full-time) Gymnasium, 6 per cent had passed the Abitur at other similar institutions (like Gesamtschule, Kolleg, part-time school etc.), 21 per cent had finished the Fachoberschule (higher vocational school) which only opens the opportunity to visit short-cycle institutions, and finally 7 per cent had received qualification in some other ways[4].

When we compare the number of Abiturienten and students successfully completing Fachoberschulen with that of the beginner students per year we realize that the difference is quite small. This is because most of those successful in the academic and the higher vocational tracks of secondary education attend institutions of higher education. Those with other qualifications to enroll fill in the rest. In 1950, the percentage of beginner students of the corresponding age group was about five per cent, 8 per cent in 1960 (including forerunner institutions of Fachhochschulen), and 15.5 per cent in 1970. Since 1972 it has remained almost constant at 18 to 19 per cent. At present the proportion of university students in the relevant age group is not particularly high by international comparison[5]. As discussed below, however, it is difficult to draw lines for equivalences of higher education between the Federal Republic of Germany and, among others, the United States.

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[1] Based on Bundesminister für Bildung und Wissenschaft, ed., Grund- und Strukturdaten 1978, Bonn 1978, pp. 62-3

[2] Geschäftsstelle des Wissenschaftsrates, Empfehlungen zum neunten Rahmenplan, Entwurf, Köln, May 1979, mimeogr., p. A/2.

[3] See Willi Becker, Barriers to Higher Education in the Federal Republic of Germany, New York: International Council for Educational Development, 1977.

[4] Bundesminister für Bildung und Wissenschaft, Grund- und Strukturdaten 1978, op. cit.

[5] Cf. Ignace Hecquet, Christiane Verniers and Ladislav Cerych, Recent Student Flows in Higher Education, New York: International Council for Educational Development, 1976, p. 41

TABLE 6 Students and Graduates, 1960 to 1990

	1960	1970	1975	1980	1985	1990
ondary school } Academic track	56.7	87.2	126.4	170.0	215.7	170.2
vers (in 1,000) } higher voc. track	-	4.3	46.3	53.5	61.2	48.0
centage of corresponding	5.7	10.7	14.8	17.1	20.9	23.3
group (19-20 years)	-	0.5	5.4	5.4	5.9	6.6
inner students } at universities	62.6	95.2	122.8	160.6	156.4	123.7
} at short-cycle instns.	16.8	30.5	43.8	69.6	67.9	53.5
centage of corresponding } at univ.	6.3	11.7	14.4	16.1	15.2	16.9
group (19-20 years) } at short-cycle instns.	1.7	3.8	5.1	7.0	6.6	7.3
lents } at universities	246.9	421.0	696.7	1,032-1,157	1,077-1,338	893-1,148
} at short-cycle institutions	41.2	89.5	145.5			
duates } of universities	36.0	67.2	82.9	138-154	182-186	182-193
} of short-cycle institutions	11.8	19.8	31.9			

ording to statistics compiled by the Federal Ministry for Education and Science and to forecasts published by Permanent Conference of the Ministers of Culture of the States of the Federal Republic of Germany.

rce: M. Kaiser, K. Parmentier and M. Tessaring, Studium und Beruf, Nürnberg 1979, mimeo., p. 13.

At the moment, official documents classify institutions of higher education into six categories:

1. Wissenschaftliche Hochschulen: Include the traditional university incorporating the full range of faculties (medicine, law, theology, philosophy, natural sciences and economic and social sciences); the special university - in most cases a technical university, because in pre-war Germany, engineering education had not been considered to be equal to the other disciplines ; and, new universities created in the sixties and thereafter; most of them include a smaller range of subjects than the traditional universities. The common characteristics of Wissenschaftliche Hochschulen have been stated as follows: "Research and the privilege of administering examinations together with the awarding of degrees such as the diploma, Master's, and doctorate degrees as well as granting the qualification for university teaching (Habilitation) belong to the traditional and legally established fundamental rights of the universities".[1]

2. Pädagogische Hochschulen: Teachers colleges used to train teachers for primary and lower secondary schools. During the sixties and seventies most of these institutions received the authority to award doctoral degrees. The number of these colleges declined recently, because many of them were later incorporated into universities or administratively combined on a state-wide or regional basis.

3. "Theological seminaries: either church or government institutions that exist outside the theology faculties at universities. In general, these seminaries confer doctor of theology degrees".[2]

4. Kunsthochschulen: The academies of fine arts, design, theatrical arts, music, film and television prepare for a career in arts; some of them prepare students for teaching arts and music at schools.

5. Fachhochschulen: Whereas the institutions mentioned so far used to be considered "university-type institutions" in international comparison, the Fachhochschulen (vocational colleges) resemble non-university type institutions of higher education. "Fachhochschulen were established in 1970-71 on the basis of a 1968 agreement between the Länder (states). The former engineering schools and other advanced vocational schools (e. g. for commerce or for social work) which used to belong to the secondary level of vocational education, have been merged into the Fachhochschulen".[3] The prerequisite for admission to these institutions is not, unlike the university-level institutions, to complete the academic track of secondary education, but the completion of the higher vocational school after the completion of the intermediate type of secondary schools, (12 years of schooling). Graduates of Fachhochschulen are entitled to be admitted to university-level institutions in their respective field of study.

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[1] Hansgert Peisert and Gerhild Framhein, op. cit., p. 9

[2] Ibid., p. 11

[3] Ibid., p. 11

6. Gesamthochschulen: During the seventies, a few comprehensive universities have been founded which cover both university-level and non-university level higher education under one roof. All of them permit an easier transfer, some of them offer - partly or totally - integrated courses for both student groups (Abiturienten as well as those qualified for non-university level higher education).

Table 7 shows the quantitative developments of institutions of higher education. The forerunner institutions of the Fachhochschulen - these institutions officially became institutions of higher education in 1970 - are not included. The total enrolment in winter 1977/78 was more than 30,000 students at 3 universities and more than 20,000 at an additional 5 universities. Among other types of institutions, very few had a student body of more than 5,000.

Table 8 shows the predominance of the university level in higher education in the Federal Republic of Germany. In 1977, two-thirds of students were enrolled at Wissenschaftliche Hochschulen, but less than a fifth at Fachhochschulen. Of the beginner students in 1977, 66 per cent enrolled at university-level institutions (including teacher colleges, theology seminaries and art colleges), 7 per cent at comprehensive universities, and 27 per cent at Fachhochschulen[1].

Table 9 presents an overview of the major fields of studies chosen by students at institutions of higher education in the Federal Republic of Germany. The largest enrolment figures can be found in humanities (including teacher training); most of these students intend to become teachers.

Students in Fachhochschulen are enrolled mostly in engineering, commerce and social work. In the near future, public administration will be the fourth major subject in short-cycle higher education, because the process of legal incorporation of former higher vocational schools for public administration into the system of higher education will be completed in 1979. In the case of engineering, the number of short-cycle graduates exceed by far the number of university graduates. In economics, however, the reverse pattern can be found. Finally, higher education in the field of social work used to be offered only in Fachhochschulen.

The general pattern of subjects at German universities would not be unusual in international comparison, but some features ought to be mentioned. In contrast to "mass higher education" systems, such as in the United States, Japan, and Sweden, the share of students in economics and social sciences at German universities is small, whereas the share of students in science and technology is very high. In the latter fields, the high percentage of mathematics and science students as compared to engineering students is striking. In 1960, only 13 per cent of university students were enrolled in mathematics and science, but 14 per cent in engineering; the expansion of natural sciences and the relative decline of engineering within the university sector present the most remarkable changes in the composition of the fields of studies during the tripling of enrolment figures at universities.

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[1] Bundesminister für Bildung und Wissenschaft, Grund- und Strukturdaten 1978, op. cit., p. 106

TABLE 7 Institutions of the System of Higher Education, 1950-75

of Institution	1950	1960	1970	1975
ersities (including technical ersities and special universities)	31	33	40	49
prehensive institutions	-	-	-	11
hers colleges	78	77	32	33
logical seminaries	16	17	14	11
academies	18	25	27	26
hochschulen (short-le institutions)	-	-	98	136
	143	152	211	266

ce: Hansgert Peisert and Gerhild Framhein, Systems of Higher Education: Federal Republic of Germany, New York: International Council for Educational Development, 1978, p. 13.

TABLE 8 Students at German Institutions of Higher Education by Type of Institution[+]

ype of Institution		1950	1960	1970	1975	1977
niversities (including technical iversities and special universities)		112,000	217,000	350,000	553,000	606,000
omprehensive universities		-	-	-	42,000	56,000
eachers colleges	ca.	10,000	33,000	59,000	79,000	69,000
heological seminaries		5,000	3,000	2,000	2,000	2,000
rt academies		5,000	8,000	11,000	15,000	15,000
achhochschulen (short cycle institutions)	ca.	40,000	ca. 68,000	ca. 112,000	146,000	165,000
otal	ca.	172,000	ca 329,000	ca. 534,000	837,000	914,000

ource: H. Peisert and G. Framhein, Systems of Higher Education: Federal Republic of Germany, New York: International Council for Educational Development, 1978, p. 14.

German and foreign students; the figures are those of the winter semesters.

TABLE 9 Field of Study of Students by Institutions of Higher Education, Winter 1977/78 (in 1,000)

Field of Study	Universities, Teachers colleges, music and fine arts colleges	Comprehensive universities	Short-cycle institutions	Total
Absolute				
Humanities	240.8	14.5	2.3	257.6
Economics and social sciences	143.0	15.5	57.8	216.3
Mathematics, science	127.9	7.2	2.9	138.0
Engineering	68.8	14.0	87.7	170.5
Medicine etc.	64.5	1.3	-	65.8
Agriculture etc.	16.3	0.9	6.0	23.2
Music, fine arts	30.3	2.8	8.7	41.9
Total	691.8	56.2	165.4	913.3
Percentage				
Humanities	34.8	25.8	1.4	28.2
Economics and social sciences	20.7	27.6	34.9	23.7
Mathematics, science	18.5	12.8	1.8	15.1
Engineering	9.9	24.9	53.0	18.7
Medicine etc.	9.3	2.3	-	7.2
Agriculture etc.	2.4	1.6	3.6	2.5
Music, fine arts	4.2	5.0	5.3	4.6
Total	100.0	100.0	100.0	100.0

Source: Bundesminister für Bildung und Wissenschaft, Grund und Strukturdaten 1978, Bonn 1978, p. 111.

Comparing the field of studies in 1960 and 1977, one additional change must be mentioned: The percentage of students in medicine (including dentistry and pharmacy) declined from 12 to 9 per cent. If one looks at the trends for the distribution of fields of studies during the last five years, the percentage of students in engineering and medicine is increasing, whereas the share of students in science is diminishing. In addition, the percentage of students in humanities has been declining since 1975 - a result of dim prospects to be given a teaching position at primary and secondary schools.

As Table 10 shows, only about one-third of all students at German universities are female. The percentage of women at institutions of higher education had been much smaller in the fifties and sixties. It is impossible, however, to claim a constant trend towards an even share of both sexes in higher education, for the percentage of female freshmen underwent irregular changes during the seventies. After a rise from 31 per cent in 1970 to 40 per cent in 1974 it decreased to 35 per cent in 1976 and rose again to 40 per cent in 1978. From 1970 to 1977 the percentage of female secondary school graduates eligible to enroll at institutions of higher education increased from 37 per cent to 47 per cent[1].

Finally, some information on the age composition of German students should be given here. In 1975 only 17 per cent of German students were 20 years or

TABLE 10 Percentage of Female Students

Institution/Field of Study	1960	1965	1970	1975	1977
Total	23.5	23.7	30.7	33.7	34.4
At universities and teachers colleges	27.1	28.8	34.5	36.2	36.9
At comprehensive universities	-	-	-	31.0	30.0
At music and arts colleges	38.8	41.4	39.4	41.9	44.3
At short-cycle institutions	-	-	11.8	22.7	24.5
Humanities	49.5	50.7	57.5	54.6	54.6
Economics, social sciences	13.8	14.1	15.7	27.2	30.0
Mathematics, science	20.3	21.5	25.1	32.9	32.2
Engineering	1.7	2.9	3.5	7.0	7.4
Medicine etc.	27.1	23.8	23.1	28.1	30.9
Agriculture etc.	9.3	14.6	28.8	43.6	42.8
Music fine arts	38.8	41.4	39.4	52.0	52.6

Source: Based on Bundesminister für Bildung und Wissenschaft, Grund- und Strukturdaten 1978, Bonn 1978, pp. 113-5.

[1] Cf. Geschäftsstelle des Wissenschaftsrates, op. cit., pp. A/6-21.

younger, 57 per cent were 21 to 25 years old, 18 per cent were 26 to 29 years old and 9 per cent 30 years or more[1]. German students are older than their counterparts in most other countries, because:

- admission to universities requires 13 years of school education;
- about half of university freshman have spent some time outside the educational system after completing secondary education (military service, waiting time before entering a numerus-clausus subject, other activities);
- the time span for obtaining a college degree is very long at Germany institutions of higher education: the average university graduate in 1976 had spent 6.5 years at institutions of higher education before earning his degree, the graduate of a Fachhochschule, 3.9 years[2].

Exact figures on the number of "adult" students - students having spent many years of gainful employment before enrolling at institutions of higher education - are not available. Yet it is almost certain that this group comprised less than 10 per cent of all students.

HIGHER EDUCATION AND THE LABOUR MARKET: A QUANTITATIVE OVERVIEW

It is very difficult to present a reliable overview on the state of employment of university graduates in the Federal Republic of Germany, because few data are available. The regular employment surveys do not include the educational background, therefore one has to turn to the census data surveyed once in ten years. In the United States, Japan, Sweden or the United Kingdom, surveys are conducted to find out the whereabouts of college students some months after their graduation. In West Germany, however, one cannot find any data of this kind. Moreover, exact figures of the number of graduates are missing. A few dozens of surveys on single fields of studies or occupations have been conducted, but they are insufficient to present a comprehensive view. In other words, the available data offer only some interesting insights to the development existing in higher education and employment after World War II, but are insufficient for an analysis of recent changes in the labour market of college graduates especially due to the economic problems since 1973.

Of the total labour force in 1950, only about 2 per cent had taken a degree at a university-level institution (according to present standards, i.e. including teacher colleges etc.). By 1961 this figure had risen to 2.9 per cent, and in 1970 to 3.8 per cent (see Table 11). Of the total labour force in 1970, 73

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[1] Hüfner, Köhler and Naumann, op. cit., p. 10

[2] According to computations by the Federal Ministry of Education and Science, the average stay at universities until the first degree rose from 5.7 years in 1970 to 7.2 years in 1974 and fell to 6.5 years in 1976. Of this 6.5 years, 1.6 years are due to changes in the field of study or prolongations because of transfers to different types of higher education. Cf. Bundesminister für Bildung und Wissenschaft, Grund- und Strukturdaten 1978, op. cit., p. 126.

TABLE 11 Development of College-Trained Labour Force

ear	University graduates		Graduates of short-cycle institutions[+]	
	In 1,000	Percentage of total labour force	In 1,000	Percentage of total labour force
961	772	2.9	-	1.0[++]
970	998	3.8	394[+++]	1.5[+++]
978	1,383	5.3	600	2.3
985	1,630-1,729	6.1-6.4	749	2.8
990	1,965-2,110	7.3-7.8	911	3.4

. Kaiser, K. Parmentier and M. Tessaring, Studium und Beruf, Nürnberg 1979, mimeo., p. 15; und-Länder-Kommission für Bildungsplanung und Forschungsförderung, Entwicklung des Angebots d Bedarfs an Hochschulabsolventen, Bonn 1976, mimeo.

ncluding graduates of forerunner institutions

Estimate

[+]Only graduates of technical colleges.

per cent had been at main schools with or without additional apprenticeship training, 20 per cent had attended the intermediate track of secondary education and/or had higher vocational training, 1.8 per cent had the Abitur certificate but no college degree; it can be assumed that the majority of them are college dropouts. Finally, 1.5 per cent of the labour force were graduates of engineering colleges[1].

According to recent estimates, 5.3 per cent of the labour force in 1978 were university graduates, and 2.3 per cent were graduates from short-cycle institutions. According to estimates presented in 1976 by the Federal-State Commission for Educational Planning and Research Promotion, one can assume that about 11 per cent of the labour force in 1990 will be college graduates.

Tables 12 and 13 give an overview of the employment of university-trained persons in 1961 and 1970. These data from the censuses of 1961 and 1970 are taken as indicators of the fact that the increase of 39 per cent during this period in the number of persons who had acquired a university degree had not led to any substantial changes in their occupational perspectives. Almost half of the additional occupations for university graduates had been created in the teaching profession. In most occupational groups, the percentage of university-trained persons increased only marginally, or even decreased. It is safe to assume that the rising number of college graduates during the sixties had been absorbed by the general change in the occupational structure. In addition, the growing percentage of college-trained persons in some occupational groups had generally been considered to meet the rising requirements in these groups.

The statistics do not show exactly what percentage of university graduates are working in the public sector. Estimates vary from 50 to 60 per cent. Of the graduates of Fachhochschulen, who are not included in these tables, less than one-third are employed in the public sector. Table 13 suggests, however, that the proportion of university-trained persons working in the public sector did not diminish during the sixties.

The census also provides data on the relationship between education and income, as Table 14 shows. In 1970, the average monthly income of persons having a university degree was two and a half times as high as that of persons who had not completed any vocational training. It almost exceeds twice as much the income of persons having completed compulsory education and apprenticeship.
The small difference in the income of university graduates and short-cycle graduates is, however, misleading. In the case of short-cycle graduates, only graduates of engineering colleges were taken into account. Special surveys, though, show that the income advantage of university-trained engineers, as compared to graduates of engineering colleges, used to be much higher[2].

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[1] Klaus Parmentier and Manfred Tessaring, "Bildungswesen und Arbeitsmarkt für Hochqualifizierte. Eine Übersicht", in Arbeitsgruppen des Instituts für Arbeitsmarkt- und Berufsforschung und des Max-Planck-Instituts für Bildungsforschung, eds., Bedarfsprognostische Forschung in der Diskussion, op. cit. p. 251.

[2] See the overview of available data in Claus Oppelt, Ingenieure im Beruf, Berlin: Max-Planck-Institut für Bildungsforschung, 1976 (Studien und Berichte, Vol. 37)

TABLE 12 Employed University Graduates by Occupational Group in 1961 and 1970 - Census Data

cupational group	1961 Employed Graduates (in 1,000)	Percentage	% of Labour Force in corresponding Group	1970 Employed Graduates (in 1,000)	Percentage	% of Labour Force in corresponding Group	Percentage Change 1970:1961
rson-related and community-elated services	520.2	67.6	33.1	753.5	70.5	30.6	+ 45
gal occupations	49.9	6.4	75.6	56.6	5.3	77.7	+ 8
ts, communication and elated occupations	22.9	3.0	13.5	31.7	3.0	15.3	+ 38
alth occupations	130.4	16.9	28.5	162.6	15.2	27.0	+ 25
ucation occupations	270.3	35.1	85.2	416.2	38.9	90.7	+ 54
ergy	35.3	4.6	52.5	35.4	3.3	69.3	+ 0.3
ner arts and science ccupations	8.5	1.1	74.7	38.7	3.6	100.0	+355
ners	3.9	0.5	0.8	12.3	1.2	1.2	-
istributing, administrative, and anning occupations	222.8	28.9	3.3	269.7	25.2	3.3	+ 21
es and clerical occupations	51.0	6.6	1.0	82.5	7.7	1.3	+ 62
trepreneurs, business occupations	42.8	5.6	9.9	41.3	3.9	11.2	- 4
litical and administrative ccupations	30.8	4.0	12.3	37.4	3.5	13.7	+ 21
entific and technical occupations	98.8	12.7	11.6	108.5	10.1	9.1	+ 11
ner occupations	27.0	3.5	0.1	45.5	4.3	0.3	+ 69
tal	770.0	100.0	2.9	1,068.7	100.0	4.3	+ 39

urce: K. Parmentier and M. Tessaring, "Bildungswesen und Arbeitsmarkt für Hochqualifizierte: Eine Übersicht," Arbeitsgruppen des Instituts für Arbeitsmarkt- und Berufsforschung und des Max-Planck-Instituts für Bildungsforschung, ed., Bedarfsprognostische Forschung in der Diskussion, Frankfurt: Aspekte, 1976, p. 255.

TABLE 13 Employed University Graduates by Major Economic Sector in 1961 and 1970 - Census Data

onomic Sector	1961 Employed Graduates (in 1,000)	Percentage	% of Labour Force in corresponding Sector	1970 Employed Graduates (in 1,000)	Percentage	% of Labour Force in corresponding Sector	Percentage Change 1970:1961
ivate Sector	213.6	27.7	1.0	299.6	28.0	1.6	+ 40
riculture, forestry	6.1	0.8	0.2	6.2	0.6	0.3	+ 2
oduction	103.0	13.1	0.8	146.4	13.7	1.8	+ 45
ade	38.8	5.0	1.2	51.4	4.8	1.6	+ 33
ance	12.3	1.6	2.7	19.9	1.9	3.0	+ 61
al estate and miscellaneous ivate professional services	49.9	6.5	14.4	65.6	6.1	13.6	+ 31
ner private services	5.5	0.7	0.4	10.1	0.9	0.8	+ 84
edominantly Public Sector	55.1	72.1	10.6	769.1	72.0	14.1	+ 39
ectricity, water, mining	7.7	1.0	1.0	8.1	0.8	1.6	+ 6
ansportation and communication	8.0	1.0	0.5	11.2	1.0	0.8	+ 40
ience, education, arts, urnalism	303.8	39.5	42.6	465.7	43.6	49.3	+ 53
alth services	107.3	13.9	17.8	131.7	12.3	17.7	+ 23
n-profit organizations and rivate households	44.5	5.8	8.5	47.7	4.5	14.4	+ 7
vernment and social security	83.8	10.9	5.7	104.7	9.8	5.0	+ 25
response	1.3	0.2	-	-	-	-	-
tal	770.0	100.0	2.9	1,068.7	100.0	4.3	+ 39

urce: K. Parmentier and M. Tessaring, op. cit., p. 257.

TABLE 14 Monthly Net income of the Labour Force 1970 - Census Data

Education/Training	Monthly Income (DM) in percentage -300	300-500	500-800	800-1200	1200-1800	1800-2500	2500 u. m.	Median	Index
Without completion of any vocational training	10.5	21.1	36.7	25.3	4.1	1.8	0.4	713.--	100
Apprenticeship completed	4.0	7.9	30.0	40.7	11.8	4.0	1.5	959.--	135
Training at higher vocational school	5.1	10.3	26.7	33.6	16.5	5.3	2.5	1010.--	142
Short-cycle degree	0.6	0.5	2.0	18.1	46.1	22.0	10.8	1738.--	244
University degree	1.5	2.1	6.0	16.6	33.1	23.4	17.3	1820.--	255

Source: K. Parmentier and M. Tessaring, "Bildungswesen und Arbeitsmarkt für Hochqualifizierte", op. cit., p. 279.

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A more recent article on the income of employees and workers being included in the public social security system showed that university-level manpower of these categories had an 11.5 per cent higher salary than graduates from short-cycle institutions[1].

During the seventies, the job prospects of college graduates deteriorated. Three major causes have to be mentioned:

1. During the sixties, the expansion of the educational system was accompanied by a rapid expansion of the teaching profession. As shown above, about half of the additional positions for university graduates during the sixties had been created in this area. A reverse trend during the seventies had to be expected, not only because of a slow-down of the expansion process but also because of the age composition of teachers. Because mainly newly-trained teachers had been hired during the sixties, the proportion of those teachers aged 55 or more, which represented 25 per cent of the teaching staff in 1955, decreased to about 8 per cent in 1974[2].

2. Private and public employers in the Federal Republic of Germany remained reluctant to recruit larger numbers of college graduates and to upgrade positions even during those years around 1970 when economic prospects were good and the public mood was favourable towards educational expansion.

3. The economic problems caused by the oil price hike in 1973 led to a significant increase in unemployment. In addition, doubts grew about the need for increased numbers of college-trained persons in the face of low growth rates and rising difficulties to increase the share of public expenditures.

Although scarce, the available statistical data on the recent development of the labour market for college graduates after 1973 will be presented below. Table 15 shows the development of the number of candidates passing the final examinations in universities in the Federal Republic of Germany without adjusting for cases who appear in more than one examination. The number of successful graduates is not, however, equivalent to the number of new potential highly qualified work force. Among others, some persons complete two degrees in one year (for instance, state examination and doctoral degree in medicine), some students continue studies in order to get a further degree, some graduates do not intend to work, and about 10 per cent of those taking examinations are foreigners, most of whom will not work in the Federal Republic of Germany.

In spite of the shortcomings of the data presented, we may conclude from Table 15 that the growth rate of graduates accelerated after 1972. The rate of graduates seeking a job increased strongly just at a time when economic problems grew.

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[1] Werner Clement, Manfred Tessaring and Gernot Weisshuhn, "Zur Entwicklung der qualifikationsspezifischen Einkommensrelationen in der Bundesrepublik Deutschland," Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 13, No. 2, 1980, pp. 184-212.

[2] Hüfner, Köhler and Naumann, op. cit., pp. 27-8

TABLE 15 Number of Successful Graduates in Final Examinations at Universities and Colleges, 1960-1976 (in 1,000)

of ination :	Diploma, First State Examination	Doctoral Degree	Teachers Examination (no. of persons)	Graduation at short-cycle institutions	Total
ear					
60	20.3	6.2	9.5	11.8	47.8
65	25.5	7.7	17.1	16.2	66.5
66	31.3	8.3	14.1	17.7	71.4
67	31.3	9.9	17.6	17.7	76.5
68	31.6	10.6	17.6	17.5	77.3
69	33.0	11.0	23.6	18.5	85.1
70	30.1	11.3	25.8	19.8	87.0
71	27.9	11.4	26.2	20.4	85.9
72	29.9	10.1	27.1	21.0	88.1
73	32.3	10.1	27.8	29.2	99.4
74	33.6	10.7	30.8	30.1	105.2
75	33.7	11.4	37.8	31.9	114.8
76	36.5	11.5	40.1	29.3	117.4
bject 1976					
umanities	5.2	1.3	22.3	0.5	29.3
conomics, . c. sciences	10.7	1.3	3.3	11.5	26.8
ath., sciences	5.7	2.7	10.0	0.3	18.7
ngineering	5.7	1.0	0.6	14.7	22.0
edicine etc.	7.0	4.7	-	-	11.7
griculture etc.	1.0	0.3	0.3	0.8	2.4
usic, Fine arts	0.3	0.1	3.0	1.9	5.3

ce: Bundesminister für Bildung und Wissenschaft, Grund- und Strukturdaten 1978, Bonn 1978, pp. 130-1

luding foreigners.

At this point, a brief explanation of university examinations and degrees in the Federal Republic of Germany should be given. In some subjects, especially humanities, law and medicine, the students usually do not receive a university degree but rather take part in a first state examination. After an in-service period in schools, hospitals, public administration, courts, etc., they have to pass a second state examination. The first is considered to be only a preliminary qualification, whereas the second testifies to the professional proficiency. This means that a person who has attained the first state examination and is then employed in the private sector will not be considered to be fully qualified and cannot transfer to a job in the public sector.

The students in humanities not heading for teaching positions may take a university degree (magister); those fields of studies primarily preparing for private sector jobs are provided with university degrees (diploma) only, e. g. economics and engineering.

As Table 16 shows, the work prospects of college graduates had been affected adversely by the general rise of unemployment since 1973. In autumn 1978, the number of unemployed university graduates was four times as high as in autumn 1973; the unemployment quota of persons who had graduated from short-cycle institutions tripled in this period. The unemployment quota of persons holding a college degree remained, however, far below the average for the total labour force: in autumn 1978, 2.2 per cent of university-trained persons and 1.8 per cent of the graduates of short-cycle institutions were registered as unemployed, as compared to 3.9 per cent of the total labour force. The unemployment affected most seriously unskilled labour; among skilled labourers the unemployment quota was 2.7 per cent, but among unskilled persons 6.4 per cent.

From 1975 to 1977, when the unemployment quota of university graduates rose in contrast to the more or less constant unemployment quota of the total labour force, some experts concluded that the short-term advantage of college-trained manpower due to better job-security was vanishing; recent data suggest, though, that college education continues to promise a lower risk of unemployment. This also holds true, when one compares the unemployment quota of recent graduates with recent school-leavers or unemployment in the private sectors with that in the public sector[1].

Among unemployed persons holding a college degree in spring 1978, more than a quarter were of recent graduation. Table 17 shows that about a fifth of the unemployed college-trained persons had been without a job for a period of more than one year. Altogether, one can conclude that the data indicate a prolonged search for employment after graduation, but that truly long-lasting unemployment is a rarity up to now. Table 17 also shows the fields of study of unemployed college-trained persons. The largest group among university graduates are the teachers. The figures are misleading, however, because they have to be compared to the number of employed persons holding a college degree in the same field. As exact figures are not available, a comparison with the census data of 1970

[1] See Manfred Tessaring, "Qualifikationsspezifische Arbeitslosigkeit in der Bundesrepublik Deutschland", Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 10, No. 2, 1977, pp. 229-242.

TABLE 16 Unemployment of Highly Qualified Manpower

h/	Unemployed graduates of: Universities No. of unemployed graduates	Percentage of graduates	Short-cycle institutions No. of unemployed graduates	Percentage of graduates	Unemployment proportion of total labour force
'73	5,517	0.6	4,566	0.9	1.0
'74	7,586	0.8	6,311	1.2	2.0
'74	9,618	1.0	10,264	2.0	2.4
'75	13,131	1.4	12,139	2.2	4.4
'75	15,491	1.7	14,917	2.6	4.4
'76	18,408	1.9	14,392	2.5	4.2
'76	20,336	2.1	16,505	2.8	3.9
'77	24,668	2.5	15,074	2.5	4.1
'77	23,777	2.3	15,984	2.4	3.9
'78	23,768	2.2	12,408	1.8	3.9
'78	22,420	2.1	12,499	1.8	3.9

ce: Bundesanstalt für Arbeit.

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TABLE 17 Unemployment of College Graduates by Field of Study, May 1978

Fields of Study	University graduates unemployed			Graduates of short-cycle institutions unemployed		
	Absolute	Percentage of recent graduates	Percentage over 1 year unemployed	Absolute	Percentage of recent graduates	Percentage over 1 year unemployed
Agriculture, forestry	366	34.4	26.0	148	24.3	17.6
Engineering	2,908	29.9	26.7	6,080	30.2	21.5
Science	3,257	27.3	25.5	363	40.2	22.8
Law	1,186	18.5	12.6	-	-	-
Journalism, library science etc.	568	16.0	14.2	194	20.6	14.9
Music, performing arts etc.	562	18.3	23.8	1,105	25.6	23.1
Medicine, pharmacy etc.	1,641	5.5	14.1	-	-	-
Social work	571	50.1	16.3	1,869	21.6	12.4
Teacher training	7,303	27.3	13.9	88	25.0	13.6
Economics and social sciences	4,385	42.2	24.8	998	41.9	15.7
Other humanities	1,067	35.2	30.7	-	-	-
Total	23,768	28.5	21.0	12,408	27.5	19.5

Source: Based on Amtliche Nachrichten der Bundesanstalt für Arbeit, No. 10, 1978, pp. 1305-6.

TABLE 18 Estimates on Whereabouts of Recent College Graduates (in 1,000)

Tessaring	Graduates from final examinations	New entrants to labour market	"Replacements" and new positions		Unemployed	"Unexplained rest"
			Public sector	Private sector		
1	65.5	57.6	39.2	24.1	-	-
2	67.1	59.0	41.3	24.0	-	-
3	71.4	62.8	33.4	24.0	1.7	3.7
4	76.3	64.9-67.1	39.3	18.6	3.1	3.9- 6.1
5	84.5	71.8-74.3	32.9	18.5	4.9	15.5-18.0
6	90.0	73.3-79.3	27.2	18.5	5.5	26.1-28.0
7	98.5	83.7-86.7	27.7	18.7	7.0	30.3-33.3
8	106.8	90.8-94.0	23.3	18.6	7.1	41.5-45.0
centage						
8		100	25	18-19	8	46-48

nstitut der Deutschen Wirtschaft

r	Total (Percentage)	New positions	"Replacements"	Unemployed	"Unexplained rest"
8	100	35	24	24	17

rce: M. Tessaring, "Zum Verbleib der Hochschulabsolventen seit 1971", Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 11, No. 2, 1978, pp. 175-6; U. Göbel and W. Schlaffke, eds., Berichte zur Bildungspolitik 1979/80 des Instituts der deutschen Wirtschaft, Köln: Deutscher Instituts-Verlag, 1979, p. 340.

might allow an approximation. On this basis, the unemployment quota for natural scientists would be 5.4 per cent in spring 1978, for social scientists 4.4 per cent, for graduates in humanities 3.4 per cent, for engineers 3.0 per cent, for graduates in agriculture 2.4 per cent, for teachers 1.6 per cent, for graduates in law 1.3 per cent and graduates in health subjects 0.9 per cent (in all cases graduates of short-cycle institutions have been excluded)[1]. The unemployment of teachers has been, up to now, far below the average of university-trained manpower. The graduates of some subjects - such as architecture, sociology, and political science - face an extremly high risk of unemployment.

It is generally assumed that since the mid-seventies a considerable proportion of university graduates have taken over positions previously considered the preserve of non-graduates. The available data, however, only permit very crude estimates about the percentage of graduates taking over such kind of positions. Tessaring estimated the establishment of new positions for university graduates on the basis of employers' forecasts on future demand; he added this number to "replacements" and unemployed recent graduates, and called the difference between the estimated number of recent graduates seeking a job and the fotal of estimated demand plus "replacements" and unemployment, the "unexplained rest". According to his computations presented in Table 18, this "unexplained rest" grew from 6-8 per cent in 1974 to 46-48 per cent in 1978. He did not explain what he considered to be the whereabouts of this rising group; it seems appropriate to conceive that most of them had taken positions not previously held by college graduates or took up self-employment. In a more recent essay, Tessaring came to the conclusion that even about 88 per cent of those persons who graduated during the seventies and found employment started with positions usually considered appropriate for college graduates[2].

The Institut der deutschen Wirtschaft at Cologne, an institution sponsored by the Federation of German Industry, estimated that 24 per cent of recent graduates in 1978 remained unemployed; according to their estimate, 17 per cent were "unexplained rest". The high percentage of unemployed, however, seems to be due to an error in the computation presented[3]. At any rate, both estimates support the view that a growing number of college graduates take over positions previously held by non-graduates.

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[1] Ulrich Teichler and Friedrich Voss, Materialien zur Arbeitsmarktlage von Hochschulabsolventen, op. cit. p. 25

[2] Manfred Tessaring, "Zum Verbleib der Hochschulabsolventen seit 1971" in : Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 11, No. 2, 1978, pp. 171-7.

[3] The chart presented in the Institute's publications contains the annual figures of final examinations at all institutions of higher education and the total numbers of unemployed persons holding a university degree. See Göbel and Schlaffke, op. cit., p. 340.

CHAPTER 4

CHARACTERISTICS OF HIGHER EDUCATION AND EMPLOYMENT IN THE FEDERAL REPUBLIC OF GERMANY

THE RELEVANCE OF THE CHARACTERISTICS OF A GIVEN SYSTEM

Development of the relationship between higher education and employment in a given society cannot be fully understood, unless one takes into consideration the characteristics of higher education and the education system in general, of the occupational system and of the links between higher education and employment which have been established in the course of history. Undoubtedly, industrial societies have much in common as far as their knowledge, its transmission and utilization are concerned, and this fact makes useful the international comparison for planning purposes in a given society. But international comparison is prone to an underestimation of the characteristics.

Stressing the characteristic aspects seems especially necessary in a study on higher education and employment in the Federal Republic of Germany, for many international comparisons in the field of education systems and their relation to work state consciously or unconsciously normal cases or international prototypes. Many features of the German system cannot easily be classified in terms of those categories. And this can provide an explanation for the fact that many international studies on education do not pay much attention to this somewhat unusual case of the Federal Republic of Germany.

Under these circumstances it proved to be very difficult to introduce international comparison in the Federal Republic of Germany as a means of better understanding one's own system of education and its relationship to the society. The arguments about the "educational catastrophe" might have stressed parallels too readily in an effort to prove that the German system was lagging behind international trends in horizontal structure, in concern about general education and quantitative expansion, to name a few examples. As opposed to it, critics of further expansion of higher education often exaggerated the limits of "transferability", drawing attention to isolated and apparently absurd examples[1].

[1] Cf. Hermann Linke and Norbert Weigang, "Bildungsexpansion und Arbeitsmarkt für hochqualifizierte Arbeitskräfte: Ideologie und Realität," Deutsche Universitätszeitung, No. 14, 1975, pp. 551-2; Horst Bahro, Willi Becker and

Therefore it is not surprising to find that the number of publications in West Germany remained few which deal with higher education and employment more systematically in comparative perspectives[1].

There exists a danger that studies on a single society stress too much the peculiarities. Such an idiosyncratic description might be reinforced by the fact that research in a given country is often preoccupied with the characteristics of this particular society. There is no way of understanding the relative emphasis research in a given country places on manpower requirements forecasts, surveys on education and income, social origin and educational/occupational career, for instance, unless at the same time attention is drawn to the typical characteristics of that country's higher education, occupation structure, education and social policy, etc. Thus, any description of a given country's research effort in the social sciences is, to some extent, a description of its social situation[2]. Such a focus on the characteristics might be considered reasonable in order to concentrate the rare research funds available on the specific problems of one's own society;[3] thereby, however, the opportunity would be overlooked to question the given state of affairs and to examine interesting solutions in other societies as to their value and transferability towards one's own society.

In presenting the characteristics of higher education and employment in the Federal Republic of Germany, this study neither intends to systematically compare several countries nor point only to the peculiarities or the unique features

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Joseph Hitpass, Abschied vom Abitur? Hochschulzugang zwischen Numerus clausus und Massenbildung, Zürich: Interfrom, 1974, p. 31.

[1] See especially Manfred Tessaring and Heinz Werner, Beschäftigungsprobleme von Hochschulabsolventen im internationalen Vergleich, Göttingen: Schwartz, 1975 (Schriften der Kommission für wirtschaftlichen und sozialen Wandel, Vol. 53); Ulrich Teichler and Yoko Teichler-Urata, Der Arbeitsmarkt für Akademiker in Japan, Göttingen: Schwartz, 1975 (Schriften der Kommission für wirtschaftlichen und sozialen Wandel, Vol. 51); Burkart Lutz "Bildungssystem und Beschäftigungsstruktur in Deutschland und Frankreich. Zum Einfluss des Bildungssystems auf die Gestaltung betrieblicher Arbeitskräftestrukturen," in H.-G. Mendius, et al. Betrieb - Arbeitsmarkt - Qualifikation, Vol. I, Frankfurt: Aspekte, 1976, pp. 83-151; ABV Management Service, Eingliederungsprobleme von Absolventen tertiärer Bildungsgänge beim übergang vom Ausbildungs- zum Beschäftigungssystem in ausgewählten Ländern, Bonn: Bundesminister für Bildung und Wissenschaft, 1976; Ulrich Teichler, Dirk Hartung and Reinhard Nuthmann, Hochschulexpansion und Bedarf der Gesellschaft, op. cit.

[2] See Teichler, "Higher Education and Employment in the Federal Republic of Germany: Trends and Changing Research Approaches from the Comparative Point of View", op. cit.

[3] Cf. Herman A. Berliner, "Comment", in Henry Wasser, ed., Economics of Higher Education: A Comparative Perspective of Policy and Dilemma, New York: City University of New York, 1978, p. 67-8.

of a country. A systematic comparison would surpass the possibilities of a case study. Also, in the strict sense, there might hardly be any uniqueness in Germany, for there is a good deal of historical similarity with neighbouring countries and many cases of "cross-fertilization". For the purpose of understanding the development of higher education and employment in a given country, it seems more appropriate to explain characteristics which are not common to most industrial countries and in this form to contribute significantly to the explanation of specifics of the constellation of higher education and employment in the Federal Republic of Germany. Explaining the characteristics might easily lead to producing or reinforcing stereotypes. It is hoped, however, that the short description in this chapter, combined with more detailed analysis in the following chapter, may avoid this danger.

STATE INSTITUTIONS AND PUBLIC RESPONSIBILITY FOR HIGHER EDUCATION PLANNING

One characteristic of higher education in West Germany has far-reaching consequences: the fact that it is for the most part a public concern - that means under state and federal control. Ninety-eight per cent of all students are enrolled in public institutions. The remaining 2 per cent are distributed among a handful of parochial colleges and private technical colleges, which for the most part are financed by public funds as well. Furthermore, students have no college fees to pay. Finally, over half of all college graduates have found a position in public administration, in the education system which is almost exclusively state-controlled, or in those professions over which state planning and regulatory activities have considerable influence. This leaves government with a heavy responsibility for the quantitative development of higher education: among other things, in setting priorities with regard to public funding (here, higher education in relation to other social services); in opening up opportunities for broader participation in higher education; in providing the labour market with highly qualified manpower; in providing training for a new generation of public employees; and in bearing responsibility for scientific development.

The strong position of the government had far-reaching consequences in the post-war period. Governments are put under the contradicting pressures to care for conditions in education and economy which give a fair chance for graduates to be employed appropriately on the one hand, and, on the other, they have to offer any qualified leaver of secondary schools an opportunity to enroll at institutions of higher education[1]. As discussed in more detail in chapter 6, it is not surprising that state agencies in the Federal Republic of Germany commissioned more manpower requirements studies for the area of highly qualified manpower than any other country relying on a predominantly market-oriented economy. There also could be observed an extremely high pressure

[1] For this conflict see Lutz-Rainer Reuter, "Bildungs- und Beschäftigungssystem: Zum Verhältnis von individuellem Bildungsanspruch, ökonomischgesellschaftlichem Qualifikationsbedarf und staatlicher Ausbildungssteuerung," Aus Politik und Zeitgeschichte: Beilage zur Wochenzeitung Das Parlament, No. B2/78, 1978 pp. 3-28.

for establishing a "justifiable" selection when restricted admission spread in the seventies. Because the state is responsible for administering this stage of social selection, it is hoped to integrate egalitarian expectations, opportunities for individual advancement and reward for achievement in a more or less perfect way[1].

The strong position of the government as regards higher education caused, however, continuous conflicts which derived from the state's particularistic interests as public employer on the one hand, and its universalistic interest in guaranteeing the advancement of knowledge, flexibility of the individual in the labour market, etc. on the other. For example, as mentioned earlier, in many fields of study, (especially humanities, law and medicine) students usually take a state examination and do not receive any college degrees; this tends to limit, however, the inclination as well as the opportunities for these graduates to be employed outside the public sector. The general policy of the government in the seventies to support curricula at universities which do not prepare for a narrow occupational range was contradicted, for example, by the establishment of special colleges for intermediate positions in public administration[2].

The traditional relationship between university and the state had been of a kind that a gap was fostered between academically trained people and those engaged in the developing sectors like commerce and later industry in the 19th century. These tensions have been carried over, to some extent, even to the present.

The strong position of the government forced the universities to bargain constantly with the state on higher education reforms. Most innovations had to receive approval of the state, they either had to be officially given an experimental status or had to be recognized by laws, ordinances etc.[3] The public system of higher education planning faced many difficulties, because most powers rested with the Länder, but the constitutional homogeneity of the society applies also to higher education. This caused continuous debates on the need for co-ordination and increase of federal powers on the one hand, and about the rôle of innovations supported by individual states on the other.

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[1] See International Council for Educational Development, op. cit., see also Ulrich Teichler, Admission to Higher Education in the United States: A German Critique, New York: International Council for Educational Development, 1978, pp. 7-9.

[2] See "Sonderhochschulen" (special issue), Studentische Politik; Hans Brinckmann, Susanne Hackforth and Ulrich Teichler: Die neuen Beamtenhochschulen, Frankfurt and New York : Campus 1980.

[3] See the chapter on the Federal Republic of Germany in John H. Van de Graaf et. al., Academic Power: Patterns of Authority in Seven National Systems of Higher Education, New York: Praeger, 1978; Dietrich Goldschmidt, "Power and Decision-Making in Higher Education," Comparative Education Review, Vol. 22, No. 2, 1978, pp. 212-241.

THE PROMOTION OF SPECIFIC QUALIFICATIONS

The academic as well as political debate varies in thrust from one country to another, depending on whether education is seen as a process by which special and distinct qualifications are acquired for application in specific occupations, or whether education is understood as a process by which the student develops a particular overall level of competence and ability. In every country the education system has no doubt the function of promoting qualification in general, as well as providing training in specific skills. It also holds true to all countries that there are considerable differences in the degree to which a course of training is specialized from one field to another, as well as between the various institutions. Nonetheless, it appears on balance that the relationship between the education and occupation systems is characterized by one of two relatively clear assumptions: either that specific qualifications lead to particular occupations, or a certain educational level leads to a certain range of occupations.

To illustrate the difference in emphasis between the Federal Republic of Germany and the United States, one may speak in the United States of "over-education", or the assumption that further college education would provide no additional income advantage[1]. In the Federal Republic of Germany, it is more likely that the same state of affairs would give rise to fears that the qualifications provided are "wrong" and that the person is not prepared well enough to carry out his job well[2].

It is perhaps easier to understand the characteristic tendency of arguments to be found in the Federal Republic of Germany when one bears in mind that practically everyone in this country acquires some sort of vocational or professional training. The graduate from the main track of secondary school goes into an apprenticeship, which is accompanied by part-time vocational schooling - mandatory even for those who have no apprenticeship. Graduation from the intermediate track leads to advanced training schools. Although the college-prep student has obtained his Abitur, (school-leaving certificate) he is likely to have difficulty in finding employment, being viewed as occupationally unqualified.[3] Undergraduate study is also relatively specialized in comparison to programmes in many other countries.

The notion of specific qualifications in the Federal Republic of Germany added to the fear of mismatches between demand and supply of highly qualified man-

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[1] For example Richard B. Freeman, The Over-educated American, New York: Academic Press, 1976.

[2] Cf. the views presented by Armin Hegelheimer, "Einleitung," in A. Hegelheimer, ed., Texte zur Bildungsökonomie, Frankfurt 1974, pp. IX-CLXXIIX.

[3] Adolf Kell, "Studienberechtigung und Berufsqualifikation," in U. Lohmar and G. E. Ortner, eds., Die deutsche Hochschule zwischen Numerus clausus und Akademikerarbeitslosigkeit, op. cit., pp. 128-153; Deutscher Bildungsrat, ed., Materialien und Analysen zur Ausbildung und Beschäftigung von Abiturienten ohne Studium, Stuttgart: Klett, 1975.

power. More than in other countries, scholarly publications and research activities were focussed on the question as to how much flexibility can be expected in the relationship of training and occupation[1].

EMPHASIS ON PREPARATION FOR CAREER

The promotion of specific qualifications contributed to the fact that universities in the Federal Republic of Germany are ascribed a predominantly occupation-preparatory function. The strong occupation orientation by no means corresponds to the self-image of university. Academic or research-oriented education (wissenschaftliche Bildung) has traditionally stood in the foreground and so career training was generally reserved for the period of about two years after graduation. Here it may as well be added that there is widespread criticism that the university does not take into account sufficiently the qualification requirements in the occupational system. But, as far as curriculum is concerned, it shows a higher degree of career-oriented specialization in most subjects

The Framework Act for Higher Education (Hochschulrahmentgesetz) of 1975/76 set officially the goal to relate university education clearly to occupational preparation:

> "Paragraph 2. Responsibilities: 1. Institutions of higher education, in accordance with their position of responsibility, serve the encouragement and development of the sciences and the arts through research, teaching and study. They prepare the students for professional endeavours requiring the application of scientific knowledge and scientific methods or the capacity for artistic expression."
>
> "Paragraph 7. Educational Goals: Teaching and study should prepare the student for a professional field of endeavour and provide him with the required specialized knowledge, abilities and methods appropriate to the respective course of study in such a way that he will be capable of scientific or artistic endeavour and of responsible behaviour in a free, democratic and social, constitutional nation."
>
> "Paragraph 8 1. Institutions of higher education have the continuing responsibility of revising and further developing the content and structure of education in co-operation with the competent public authorities, with consideration for developments in science and the arts, the requirements of professional application, and the necessary changes in the professional world..."[2]

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[1] See especially Dieter Mertens and Manfred Kaiser, eds., Berufliche Flexibilitätsforschung in der Diskussion, 4 Vols., Nürnberg: Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit, 1978; cf. the summary of research approaches in Teichler, "Higher Education and Employment in the Federal Republic of Germany," op. cit., pp. 14-22.

[2] "Higher Education Framework Law of January 26, 1976 (Federal Republic of Germany)," Western European Education, Vol. 8 No. 3, 1976, pp. 60-115, p. 64 and p. 68.

The Framework Act legalized an occupational orientation which had previously existed; at the same time, it required reforms in order to strengthen the career-preparatory function of higher education. As discussed in Chapter 7, it calls for a new concept of career-preparation. According to this Act, curricula should be less specialized than before, but students should be better prepared in order to make use of their knowledge in their future activities.

German universities were considered to be institutions for intellectual, research-oriented education. Non-cognitive socializing effects were considered less important. Again, one must state that according to the traditional ideal of Bildung durch Wissenschaft (education through research), socialization was not to be forgotten, but there were hardly any devices in universities in the Federal Republic of Germany to shape intentionally the personality development of the students. Therefore, research shows that universities were hardly aware of their socializing effects,[1] that graduates complained about problems of adjusting to the social organization of the enterprises[2] and that the development of social skills was generally lacking[3].

ACADEMIC AND RESEARCH ORIENTATION OF HIGHER EDUCATION

The principles of Einheit von Forschung und Lehre (unity of research and teaching) and Bildung durch Wissenschaft (education through research) combined with the freedom of teaching and learning, served as guidelines in the reform of the University of Berlin in the early 19th century and had a considerable influence on the history of German higher education[4] as well as universities in many other countries. In the meantime remarkable modifications have been made; for instance basic and applied research outside the university plays an important rôle; but the curriculum is set in such a way that in some fields of study only the advanced students are given the opportunity to attend certain research-oriented seminars. Nevertheless, research orientation has played an important rôle up to now. At universities there is not a professor exclusively in charge of research;

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[1] Among the few materials available see Tino Bargel et al., Sozialisation in der Hochschule, Hamburg: Arbeitsgemeinschaft für Hochschuldidaktik, 1975 (Blickpunkt Hochschuldidaktik, No. 37) Tino Bargel and Jörg Bürmann in co-operation with G. Yungblut, Hochschulsozialisation und Studienreform, Hamburg: Arbeitsgemeinschaft für Hochschuldidaktik, 1977 (Blickpunkt Hochschuldidaktik No. 44); Johann-Ulrich Sandberger and Georg Lind, "The Outcomes of University Education: Some Empirical Findings on Aims and Expectations in the Federal Republic of Germany," Higher Education, Vol. 8, 1979, pp. 179-203.

[2] See, for instance, Deutsche Gesellschaft für Personalführung, Orientierungsprobleme von Hochschulabsolventen beim Eintritt in die betriebliche Praxis, Neuwied: Luchterhand, 1972.

[3] See, for example Harry Hermanns, Christian Tkocz and Helmut Winkler, Kassel: Wissenschaftliches Zentrum für Berufs-und Hochschulforschung, 1979.

[4] See Helmut Schelsky, Einsamkeit und Freiheit: Idee und Gestalt der deutschen Universität und ihrer Reformen, Reinbek b. Hamburg: Rowohlt, 1963; Wolfgang Nitsch et al., Hochschule in der Demokratie, Berlin: Luchterhand, 1965.

the students have the right to go from one university to another during their course of studies. Many courses are open to beginner students as well as to advanced students, and graduate studies are not strictly separated from undergraduate studies. The first degree is considered to be equivalent to a Master's degree rather than a Bachelor's, and until recently the successful students did not mind prolonging their studies considerably beyond the regular time span required to receive a degree.

When the system of higher education expanded rapidly and other institutions were up-graded to university-level or non-university level institutions of higher education, the idea of Gesamthochschule (comprehensive university) gained attraction. Its aim was to integrate the research orientation and the occupational orientation of the different types of institutions and to guarantee some research orientation for all study courses (see chapter 5, page 76). Although this has not turned out to be a dominant institutional type, the Framework Act for Higher Education stated a common goal for all institutions of higher education which, as the translation cited in the previous section shows clearly, includes the orientation towards research.

HOMOGENEITY OF INSTITUTIONS

The universities in the Federal Republic of Germany are considered to be more or less equal in standard. Traditionally students made choices not because the institution was famous but because they wanted to attend the courses of certain perhaps well-known professors. These professors moved from one institution to another; they could attain better financial conditions, more assistants and better facilities, only if they had received a "call" from other institutions.

The principle of homogeneity was underlined when restricted admission spread. According to the general regulations established in 1972, the qualified student keeps the right to enroll in any field of study at any university. Restricted admission, as far as it is unavoidable, is administered by a central agency which takes into consideration the applicant's choice of university, but the admission system rests on the assumption that the institutions are more or less equal in standard. However, the admission system makes a clear-cut distinction between university-level institutions on the one hand and short-cycle higher education on the other. Many planning documents also point at the third level between the universities and the Fachhochschulen, that of the training colleges for teachers of Grundschule and Hauptschule. Expansion of higher education was accompanied by a continuous debate whether the preservation of an equal standard of institutions was possible and also desirable. It is possible, of course, to point to some prestige differences. In 1975, secondary school leavers were questioned about their preferred field of study and institutions. A rank order of the institutions according to the absolute numbers of first choices in each subject revealed that the top three places in 34 fields of study were held by 24 different institutions.[1]

[1] Cited in NC-Initiativgruppe Freiburg, Numerus clausus - ohne Ausweg? Mannheim and München: Parcus, 1976; see also Teichler, "Higher Education and Employment in the Federal Republic of Germany : Trends and Changing Research Approaches from The Comparative Point of View," op. cit.

Two universities were among the top three in about half of the subjects, but the location in larger cities or their vicinity with dense population might have contributed, at least partly, to the results of this survey. Data on the grade-points average of applicants for different institutions or on the results of an achievement test after pre-medical studies are available in some cases, and they underscore that some difference might exist in standards.

Another survey, conducted in 1977 on opinions of personnel managers in private industry, attracted attention. There they were asked to give a ranking order of universities according to their preference if they should recruit graduates from those institutions. Leaving aside that the survey showed some methodological weakpoints, it however made clear that graduates from particular institutions considered to be politically left-wing are not very popular among private employers[2].

In spite of those changes, the principle of equal standard had fundamentally been upheld until today. This holds also true as to the rights, privileges of the institutions, planning and financing of universities and recruitment policy in the public sector.

ADDITIONAL CHARACTERISTICS

The characteristics so far mentioned represent commonplace knowledge in studies on higher education and employment in the Federal Republic of Germany. Two aspects ought to be mentioned additionally in order to secure a better understanding of recent developments. First, doubts about a "soft market" for college graduates are widespread. It is generally believed that a growing supply will not be easily absorbed through substitution processes. Also, processes such as decline of income advantages, a lowering of aspirations and consequently in the long run a reduced number of applicants cannot be taken for granted, as might be the case for a functioning market.

In other words, no one would claim that a "social return" could be calculated on the basis of education costs and income, as has been done in many other countries in terms of cost-benefit approach[3]. Also, in the case of presumed oversupply in the mid-seventies, private and public employers started an im-

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[1] See the references in Gerhard Brinkmann, "Die Absorption der Hochschulabsolventen durch des Beschäftigungssystem der Vereinigten Staaten von Amerika," Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 11, No. 4, 1978, pp. 432-434.

[2] See "Deutsche Hochschulen auf dem Prüfstand," Süddeutsche Zeitung, July 7, 1978.

[3] For a criticism of such calculations, see also Douglas M. Windham, Incentive Analysis and Higher Education Planning: Alternatives in Theory, Research, and Policy, Paris: International Institute for Educational Planning, 1978 (IIEP Research Report, No. 29).

pressive campaign to lower aspirations; the campaign itself made clear how limited the hopes were that ordinary information and market processes would have the desired effects.

The lack of processes in this country assumed to lead to a market equilibrium have often been attributed to the large proportion of graduates employed in the public sector. This predominance of the public sector has given rise to a specific political debate in the country. Private employers' representatives frequently contend that a close inter-relationship between educational level and occupational rank is a characteristic of the public sector and that in the private sector graduates from short-cycle institutions, who are felt to be geared more towards the practical requirements of an occupation, have the same career chances as university graduates[1]. This contention has been critically examined in a number of surveys. These have consistently shown that although graduates from short-cycle institutions have a better chance of reaching higher positions in the private sector than in the public sector, university graduates on the whole have a clear advantage in the private sector, and this advantage tends to grow in the course of a career[2]. Recent estimates of salaries paid to graduates at the beginning of their career do not indicate any substantial change.[3]

Second, the debate on equality of opportunity had specific features in the Federal Republic of Germany. Although the aim of equality of opportunity for education was stressed very much in educational policy during the sixties and some measures were applied to encourage opportunities for the disadvantaged, there was hardly any compromise in terms of standards. For example, criteria of admission to university were only marginally changed for the sake of "non-traditional" students. In the case of semi-professional education, the upgrading of higher vocational schools to vocational colleges was accompanied even by a rise in the level of educational prerequisites. In the case of selective admissions to institutions of higher education, the social criteria would only be applied after a certain set of uniform, relatively high standards had been fulfilled by the applicants.

The limited concern about equality of opportunity in education - as opposed to

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[1] Often surveys will be mentioned in this respect which show that the absolute number of graduates of Fachhochschulen in top positions is higher than that of university graduates. See for example Winfried Schlaffke, "Berufschancen für Akademiker - Forderungen und Erwartungen aus der Sicht der Wirtschaft," in Uwe Goebel and Winfried Schlaffke, eds., Berichte zur Bildungspolitik 1979/80 des Instituts der deutschen Wirtschaft, Köln: Deutscher Instituts-Verlag, 1979, p. 196. However if one takes into consideration the distribution of educational levels on other ranks in private enterprises, the university graduates seem to have a better chance to be promoted than graduates from Fachhochschulen.

[2] See the summary of available materials on engineers in Claus Oppelt, Ingenieure im Beruf, op. cit.

[3] According to an estimate a short-cycle graduate in commerce earned 1, 900 DM, a university graduate 2, 400 DM; in the case of engineering, the corresponding figures were 2, 100 DM and 2, 500 DM; see Frank Grätz, Wer verdient was? 2nd edition, Grafenau: Lexika-Verlag, 1976, p. 152.

those countries where different standards are applied in college admissions in order to increase opportunities for disadvantaged groups - has often been attributed to the traditional "elitist" features of the education system in the Federal Republic of Germany. It has to be borne in mind, however, that individual mobility plays a less important rôle here in the social policy and the justification of the social order than in many other industrial countries, as compared to other features such as collective mobility in bargaining about wages or a network of social security. As became obvious in the recent debates about the "displacement" (see chapter 8, page 148 for explanation) of educational expansion, there is widespread mistrust in the Federal Republic of Germany as regards equality of opportunity in education, because of the apprehension that the influence of educational success in determining socio-economic status would be of help to the traditional elite anyway.

THE CHANGING ROLE OF THE CHARACTERISTICS IN THE PROCESS OF EXPANSION OF HIGHER EDUCATION

According to some views, the characteristics of higher education and its relationship to the employment system in the Federal Republic of Germany are just the features which can only survive if the number of students remains low. After the significant expansion of higher education in the last decades it is claimed that the system might be called outmoded. As often has been argued, the homogeneity of the institutions and the research-orientation caused considerable wastage because research funds were spread over and talented students and top-rank scholars scattered among a large number of institutions. Also the fairly even standards of universities are often conceived not to be suitable for a larger number and a growing diversity of students, and according to such views they are not in tune with the requirements of the occupational system. Finally, the concern for specific qualification has often been criticized for producing problems of adjustment in the labour market for graduates and not fitting to a quick turn-over of knowlege.

It is obvious at any rate that the transfer of the system to a stage which has been often referred to as "mass higher education" has caused more problems in the Federal Republic of Germany than in many other countries. For the expansion and its effects did not affect mainly the less prestigious institutions, as has been the case in many other countries with a steep hierarchy of institutions of higher education, rather it hit the whole system. Thus, it is not surprising that debates on reforms and efforts to change the system were fairly intense and long-lasting.

As opposed to such views that the characteristics are outmoded, one might argue, however, that the preservation of some characteristics offer a genuine opportunity to develop an interesting alternative to other models of "mass higher education"[1]. To take a few examples of such arguments:

[1] See Teichler, "Problems of West German Universities on the Way to Mass Higher Education," op. cit., pp. 112-4

- First, the principle that a qualified secondary school leaver is entitled to enroll in any field of studies at any institution might prove in the process of educational expansion to be more open than the allocation of "diverse" secondary school graduates to "diverse" institutions of higher education.

- Second, the traditional goals of "education through research" and of equal standards of institutions has accelerated a spread of quality-minded higher education over a large number of institutions and thus prevented steep hierarchies in self-image among scholars, students and graduates. This might also turn out to be an ordeal for the existing ranking system of jobs.

- Third, the tradition of research-oriented education and the fairly specialized education support concepts of "occupational identity": The graduates thus trained might be more inclined to challenge the occupational tasks offered, and so contribute more to innovation than students who have no specific commitment which combines education and work[1].

One could also argue that the tradition of the "community of scholars and students" may have already been transformed to a more modern version of participatory decision-making of universities - a further characteristic feature of recent reforms of higher education which has not been treated in this analysis on higher education and employment.

This study does not intend to evaluate the characteristics of higher education and employment in the Federal Republic of Germany. Only such diverse views visible in the country itself ought to be mentioned, however, in order to point out the challenge of alternative cases for consideration for a desirable relationship between higher education and employment.

[1] See the arguments about "occupational identity" in Dirk Hartung, Reinhard Nuthmann and Ulrich Teichler, "Einige Problemstellungen und Konsequenzen der flexiblen Qualifizierung als Bildungskonzeption," in D. Mertens and M. Kaiser, eds., Berufliche Flexibilitätsforschung in der Diskussion, Materialienband 2, op. cit., pp. 140-167.

CHAPTER 5

CHANGING ISSUES OF THE POLITICAL DEBATE ON THE RELATIONSHIP BETWEEN HIGHER EDUCATION AND EMPLOYMENT

RECONSTRUCTION PERIOD (1946-1956)

During the first post-war years many proposals were made for sweeping reforms of the system of higher education in the Western zones of Germany. At the end, however, the view prevailed that the universities were "im Kern gesund" (basically sound) and that undue political power had been the major cause of the subordination of universities under the Nazi regime. Universities therefore sought to strengthen their academic autonomy and, in fact, "became stronger than ever before in their partnership with the states."[1]. The traditional university was restored with the decision-making power of full professors, the close link between teaching and research, homogeneity of institutions as well as promotion of fairly specialized competences[2].

The Basic Law of 1949 stressed the principle of cultural federalism. Each state (Land) was responsible for legislation, supervision and financing of its institutions of higher education. Only the legislative authority to promote scientific research remained at the federal level, and the federal government was given the task of promotion of cultural relations with foreign countries. The principle of cultural federalism did not mean, however, that the state could develop different patterns of higher education as can be observed in the United States, for one consitutional norm demands "the preservation of uniform living conditions" in the Federal Republic of Germany[3].

During the fifties, the Permanent Conference of the Ministers of Culture of the States of the Federal Republic of Germany did not foster any plans at all for the

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[1] Dietrich Goldschmidt, "Autonomy and Accountability of Higher Education in the Federal Republic of Germany", in P. G. Altbach, ed., The University's Response to Societal Demands, New York: International Council for Educational Development, 1975, p. 155.

[2] See the collection of documents in Rolf Neuhaus, Dokumente zur Hochschulreform 1945-1959, Wiesbaden: Steiner, 1971.

[3] Cf. Peisert and Framhein op. cit., pp. 29-30

quantitative and structural development of higher education, but only tried to counterbalance the heterogeneity on the part of education preceding the entry to universities and examination at universities.

The individual Länder tried on their own to re-establish the universities and to expand their capacity in order to cope with the rising enrolment. In summer 1948, the total number of students at universities was close to the enrolment in 1930 in Germany, much higher than in the Nazi era in the total pre-war territory. It remained at this level until 1953.

As from 1954, the number of university freshmen grew at an annual rate of about 7 per cent mainly due to demographic factors[1]. As the principle was still maintained that all Abiturienten were entitled to enroll, the percentage of public expenditures spent on higher education and research grew from 1.4 in 1950 to 1.8 in 1956[2], but the share of GNP spent on higher education remained extremely low by international standards; social services, housing, defence, etc., were given higher priority than education. Expansion of higher education followed mainly the social demand and the places available at existing institutions of higher education, and little thought was given to the labour market for graduates.

FIRST STEPS TOWARDS HIGHER EDUCATION AND MANPOWER PLANNING (1957-1962)

Since about 1955, the view became prevalent that more co-ordination of efforts was necessary in order to cope with the growing number of students and with the problems of research. It also seemed obvious that a mere widening of the existing universities - without internal organizational reforms and the establishment of new institutions - could not be continued.

In 1955, the Federal Ministry for Atomic Issues was founded to take care of the new and most expensive branches of research - nuclear and space research. In 1956, for the first time, the federal government took over an active rôle in financing the semi-governmental research bodies[3] and the expansion of higher education.

The establishment of the Science Council (Wissenschaftsrat) in 1957 proved to be a major step towards quantitative and structural planning of higher education. This advisory body consisted of representatives of universities, research associations and public life as well as representatives of the Länder and the federal government. Originally it bore the responsibility of drafting plans and making recommendations for the advancement of science, but it soon turned its scope towards the development of the system of higher education in general.

[1] W. Albert and Ch. Oehler, Materialien zur Entwicklung der Hochschulen 1950 bis 1967, Hannover: Hochschul-Informations-System GmbH, 1969, pp. 95-6.

[2] See Hüfner, Köhler and Naumann, op. cit., p. 33

[3] At that time the German Research Association (Deutsche Forschungsgemeinschaft) whose major task is to fund research projects, and the Max-Planck-Society, an institution comprising institutes for basic research, were founded.

Many popular descriptions of the post-war development of education in the Federal Republic of Germany claim that the concern about highly qualified manpower began to shape educational policy around 1963/64. George Picht's series of articles in 1963 adapting the results of the OECD Policy Conference on Economic Growth and Investment in Education (1961) to the German scene are usually considered to be the beginning. Against this view, some authors convincingly show that these considerations had started already in the fifties[1]. The "Sputnik shock" affected the debate, and some experts considered necessary the transition from an extensive economic growth of the reconstruction period to intensive growth which requires a higher quality of labour.

In 1957 for instance, the Federal Ministry for Internal Affairs called for a capacity increase of higher vocational schools of engineering (Ingenieurschulen), the forerunner institutions of Fachhochschulen. It proposed an enlargement of 60 per cent until 1970. In 1958, the Permanent Conference of the Ministers of Culture published the first survey on demand and supply of teachers, showing that the number of beginner students at teacher colleges was lower than the replenishment demand. There was an estimated total undersupply of 7,000 teachers. The author of a book published in 1958 on international trends in educational expenditure came to the conclusion that expenditures in the Federal Republic were lagging behind internationally[2]. In 1959, the Social Democratic Party, then opposition party at the federal level, called for the mobilization of intellectual forces in order to avoid "educational underdevelopment" and to maintain competitivity with Eastern European countries.

In 1960, the Science Council made its first recommendations for rapid expansion of the teaching staff at universities, improvement of the status of the junior faculty and an increase in expenditures on higher education[3]. The estimate of a growth of enrolment at universities from about 200,000 in the late fifties up to 250,000 in 1970 looks in retrospect extremly conservative. The public expenditures on higher education as well as the professional staff of universities rose quickly. During the six years following that recommendation both figures increased by more than 100 per cent[4]. The Science Council also proposed to establish a few new universities instead of further expanding the established

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[1] Hüfner, Köhler and Naumann, op. cit., pp. 53-62. For a more detailed overview, see Klaus Hüfner and Jens Naumann, Konjunkturen der Bildungspolitik in der Bundesrepublik Deutschland. Band I: Der Aufschwung (1960-1967), Stuttgart: Klett, 1977.

[2] Friedrich Edding, Internationale Tendenzen in der Entwicklung der Ausgaben für Schulen und Hochschulen, Kiel: Institut für Weltwirtschaft, 1958.

[3] Wissenschaftsrat, Empfehlungen des Wissenschaftsrats zum Ausbau der wissenschaftlichen Einrichtungen, Teil I: Wissenschaftliche Hochschulen, Tübingen: Mohr, 1960.

[4] See Gerhard Hess, Die deutsche Universität 1930-1970, Darmstadt: Luchterhand, s.t. p. 34.

institutions[1]. Several Länder immediately began preparing the foundation of new universities, and in 1964 set up a formal agreement for mutual financial support of new institutions of higher education[2].

The human capital approach was employed in an estimate of required university graduates for the first time in 1962: Edding, the pioneer of economics of education in the Federal Republic, called for a total number of university students of 250,000 in 1970 and of 400,000 for 1980[3]. In the same year, the Permanent Conference of the Ministers of Culture made public a more detailed "estimate of manpower requirements", pointing out warningly the danger of a shortage of 300,000 teachers during the sixties[4].

A few years later an economist compared these predictions of 1962 to the invention of the steam engine to the industrial revolution[5].

During the early sixties, however, the forecasts and proposals for planning met sceptical reactions and opposition, for economic success as well as the political East-West conflict at that time supported an anti-planning mood[6]. It was also strongly doubted whether the need for a substantial increase in highly qualified manpower existed at all - a term, by the way, which would not have been used at that time.

THE BREAKTHROUGH OF EXPANSION-ORIENTED POLICY OF HIGHER EDUCATION (1963-1970)

Two publications seem to have made an extraordinary impact on the spread of the view that a prosperous and modern society needs a much larger share of highly educated people than could be found then in the Federal Republic of Germany. Published in 1963-65, they triggered off a debate which finally led in 1970 to the adoption of a long-term policy of deliberate rapid expansion of education.

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[1] In addition to its first suggestions in 1960, the Science Council published a new proposal in 1962: Wissenschaftsrat, Anregungen zur Gestalt neuer Hochschulen, Tübingen: Mohr, 1962.

[2] Cf. Peisert and Framhein, op. cit., pp. 103-5, E. Böning and K. Roeloffs, Three German Universities - Aachen, Bochum, Konstanz: Case Studies on Innovation in Higher Education, Paris: OECD, 1970.

[3] Friedrich Edding, "Der Ausbau der Hochschulen bis 1980," Recht und Wirtschaft der Schule, Vol. 3 No. 2, 1962, pp. 33-40.

[4] Ständige Konferenz der Kultusminister der Länder der Bundesrepublik Deutschland, Bedarfsfeststellung 1961 bis 1970, Stuttgart: Klett, 1963.

[5] Carl Christian von Weizsäcker (1967), cited in Laszlo Alex, "Ablolventenangebot und berufliche Flexibilität", in U. Lohmar and G.E. Ortner, eds., op. cit. p. 95.

[6] Cf. Laszlo Alex, op. cit. pp. 93-4.

Georg Picht, a philosopher and historian, warned the public that the economic growth might come to an end if the "catastrophe of German education,"[1] which had caused a lack of qualified manpower, was not counteracted. He argued that the number of university-trained people graduating during the sixties would meet only the demand for new teachers. He considered more than a doubling of Abiturienten to be necessary during the sixties and, in addition, called for a rapid increase in higher education.

These arguments met with quite a favourable response on the part of the public. For instance the Chancellor of the Federal Republic of Germany at that time, Ludwig Erhard, declared that for the present generation "education and science must have the same priority as the social question had in the 19th century".[2] The sociologist, Ralf Dahrendorf, argued in his book "Education is a Civil Right"[3] that the liberation of mankind from unintended bounds of the traditional social structure and educational inequality was a prerequisite for the development of a modern society. According to his view, a tripling of intermediate secondary education and of higher education might be in tune with the economic development, but an "active education policy" ought to be based primarily on the aims of supporting civil rights and the general modernization of society[4]. His survey on inequality of educational opportunity revealed that around 1960 only about 5 per cent of university students were from blue collar background. This study was often cited in the political debate until the early seventies.

Some observers believe that nothing but the wide scope of conflicting arguments in favour of an "active educational policy", combining the concern for economic growth and other socio-political ideas, finally made possible a deliberate policy of educational expansion[5].

Table 19 shows that up to the mid-seventies the percentage of university students with fathers employed as manual workers doubled in comparison to the early sixties[6].

[1] Georg Picht, Die deutsche Bildungskatastrophe, Olten and Freiburg: Walter, 1964.

[2] Cited in Hüfner, Köhler and Naumann, op. cit., p. 63.

[3] Ralf Dahrendorf, Bildung ist Bürgerrecht, Hamburg, Nannen, 1965.

[4] Dirk Hartung, Reinhard Nuthmann and Ulrich Teichler, "Bildungssystem und Beschäftigungssystem - Zum Verhältnis von Bildungssoziologie und gesellschaftlicher Entwicklung", in K. M. Bolte, ed., Materialien aus der soziologischen Forschung, Darmstadt and Neuwied: Luchterhand, 1978, pp. 308-310.

[5] See, among others, Dirk Hartung and Reinhard Nuthmann, Status- und Rekrutierungsprobleme als Folgen der Expansion des Bildungssystems, Berlin: Max-Planck-Institut für Bildungsforschung, 1975 (Studien und Berichte, Vol. 32)

[6] For the problems of research on equality of opportunity in the Federal Republic of Germany see Ulrich Teichler, "Bildung und Statusdistribution," in J. Raschert, ed., Sozialisation, Qualifikation und Statusverteilung: Jahrbuch für Erziehungswissenschaft, Vol. 3, Stuttgart: Klett-Cotta, 1979, pp. 14-65.

TABLE 19 Social Background of University and Short-cycle Institution Students

Father's occupation	Universities					Short-cycle Institutions	
	1952	1962	1967	1973	1976	1973	1976
Civil servant	38	33	30	27	25	15	14
Salaried employee	23	30	31	33	35	31	31
Self-employed	35	28	30	26	24	23	21
Manual worker	4	6	7	11	13	27	28
Others	0	3	2	3	3	4	6
Total	100	100	100	100	100	100	100

Source: Regular surveys on "das soziale Bild der Studentenschaft" commissioned by the Bundesministerium für Bildung und Wissenschaft.

The rising popularity of proposals to secure economic growth and social justice through the expansion of secondary and higher education did not necessarily mean that it led to a rapid change in higher education planning. The Science Council predicted in its recommendations in spring 1967 an annual increase in the number of university students of less than 2 per cent[1]. Students began to face more difficulties in enrolling in the field of their choice. Restricted admission (numerus clausus) began in medicine as early as 1963. According to the West German Rectors' Conference, only 30 per cent of the total fields of study remained free from restriction in 1972;[2] and most of them were actually minor subjects with regard to the enrolment figures.

The reluctance to support a more rapid expansion of higher education was based on two concerns: the financial burden for the Länder on the one hand, and the demand on the part of the occupation system for the growing number of graduates on the other hand.

Advisory bodies and special planning agencies began to question whether the open, loosely structured and research-oriented system of teaching and study at German universities should or could be preserved for all the students, or for the system of higher education at all. The Science Council for instance

[1] Wissenschaftsrat, Empfehlungen des Wissenschaftsrates zum Ausbau der wissenschaftlichen Hochschulen, Tübingen: Mohr, 1967.

[2] See Alfred W. Breinersdorfer, Papiertiger Numerus clausus, Frankfurt: Ullstein, 1979, pp. 14-8.

proposed in 1966 a division of study programmes into three stages: first, a four-year programme with strict curriculum regulation leading to the first professional degree (in 1965, the average length of study up to the first degree was 5.4 years)[1]; second, a graduate research-oriented study programme; and finally refresher courses to renew professional competence[2]. An advisory body for higher education planning was set up in Baden-Württemberg and in 1967 suggested the establishment of comprehensive institutions of higher education; the plan "not only proposed an expansion of practice-oriented programmes of study at Fachhochschulen, but also argued strongly for the introduction of three-year programmes at universities with concentration on teaching rather than research"[3]. The proposals met with strong opposition in the academic community, but ideas for expansion of short-cycle higher education have remained a major theme of higher education planning up to the present.

The arguments in favour of reduced length of study and expanded short-cycle courses show that the commissions were concerned more about the "internal aspects of the system of higher education", especially the problems of financing. They were concerned less about the labour market for college graduates[4]. This does not mean, however, that manpower notions did not play any rôle at all. The Science Council, for instance, argued fairly consistently over a long period in the process of expansion that a higher proportion of short-cycle graduates would be in tune with the demand of the occupation system.

The first study which bore methodologically a more stringent forecast of demand for university graduates was published in 1967. This study, carried out under commission by the Science Council, followed the manpower requirements approach. It came to the conclusion that by 1980 there would be about twice as many graduates as job openings for people with their qualifications[5]. Additional projections by other economists also suggested that during the eighties the demand for university graduates would be lower than the supply.

The major debates and political activities as regards higher education during that period did not focus on its quantitative and structural development, but rather on the objectives of higher education (Idee der Universität), the teaching and the internal organization. The student protest supported the spread of the

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[1] Cf. Bundesminister für Bildung und Wissenschaft, Report of the Federal Government on Education 1970, op. cit., p. 125

[2] See the summary in Hüfner, Köhler and Naumann, op. cit., p. 65; the recommendations have been translated into English: "The Reform of Courses of Study in West German Universities," Minverva, Vol. 8, 1970, pp. 250-267.

[3] Peisert and Framhein, op. cit., p. 119 summarized the proposal in that way. See Kultusminsterium Baden-Württemberg, Hochschulgesamtplan Baden-Württemberg, Villingen: Neckar Verlag, 1967 (Bildung in neuer Sicht, Series A, No. 5).

[4] Hüfner, Köhler and Naumann, op. cit., p. 65.

[5] Hajo Riese, Die Entwicklung des Bedarfs an Hochschulabsolventen in der Bundesrepublik Deutschland, Wiesbaden: Steiner, 1967.

view that the internal organization centering around the full professors (Ordinarienuniversität) was outmoded, that teaching and research in general showed signs of isolation from the society ("ivory tower") and that the universities had not been able to deal with the influx of new students, most of whom had difficulties in coping with the environment of the traditional universities. A series of new laws for higher education introduced in most states around 1970 stressed internal organizational reforms and created substantial voting rights for junior teaching staff, students and other staff members at universities[1].

Student protest and considerations for educational reform on the one hand, and proposals for structural and quantitative changes in the system of higher education on the other, however, met at one point: the upgrading of former higher vocational schools to non-university level institutions of higher education. The states signed a contract in 1968 to establish Fachhochschulen[2]. In particular, students and teachers of engineering colleges, as well as professional organizations of engineers, had argued that the German engineers had been discriminated against on the international labour market because of the status of the engineering colleges and that a higher professional competence as well as proper credentials recognising it was needed. The state government considered the upgrading of these institutions as a major step towards the creation of a more diversified system of higher education. In accordance with this, the status of teacher-training colleges was upgraded to the university level around 1970. Most employers and their organizations during that period, though, did not favour the establishment of Fachhochschulen. They doubted the need for a more academic orientation of their semi-professional staff and wanted to maintain the traditional avenue towards semi-professional engineering education, i.e. apprenticeship training and occupational experience. According to the new regulations entry to Fachhochschulen depended on the completion of intermediate secondary education plus two years of higher vocational schooling at Fachoberschulen or alternatively the Abitur, without any occupational experience being required. The employers criticized this procedure.[3] In 1969, institutional changes were made in order to secure a more co-ordinated planning of higher education and the Constitution of 1949 was amended. A ministerial report on these changes

[1] See the overviews and bibliographies in Wolfgang Nitsch, Hochschule: Soziologische Materialien, Heidelberg: Quelle & Meyer, 1967 (Gesellschaft und Erziehung, Vol. 8); Ulrich Teichler, ed., Faktoren und Zielvorstellungen der Hochschulreform in der Bundesrepublik Deutschland, Hamburg: Unesco-Institut für Pädagogik, 1970 (Internationale pädagogische Studien, Vol. 24). Cf. also Dietrich Goldschmidt and Sibylle Hübner, "Changing Concepts of the University in Society: The West German Case," in The World Year Book of Education 1971/72, London: Evans, 1971, pp. 265-283.

[2] See Deutscher Bildungsrat, ed., Gutachten und Materialien zur Fachhochschule, Stuttgart: Klett, 1974.

[3] Cf. the overview of the debate in Ulrich Teichler, Kurzstudium in der Bundesrepublik Deutschland, Berlin: Max-Planck-Institut für Bildungsforschung, 1973, mimeogr.

TABLE 20 Development of Gross National Product, Public Expenditure,

Year	GNP Billion DM	Index	Public expenditure Billion DM	Index	Per cent of GNP
1961	332.6	100	95.3	100	28.7
1962	360.1	108	107.2	113	29.8
1963	384.0	116	117.1	123	30.5
1964	420.9	127	128.1	157	30.4
1965	460.4	138	139.2	171	30.2
1966	490.7	148	145.1	178	29.6
1967	495.5	149	153.8	189	31.0
1968	540.0	162	158.8	195	29.4
1969	605.2	182	174.3	214	28.8
1970	685.6	206	196.3	241	28.6
1971	761.9	229	226.8	279	29.8
1972	833.9	251	252.1	310	30.2
1973	926.9	279	280.1	344	30.2
1974	995.7	299	315.0	387	31.6
1975	1,040.4	313	361.0	444	34.7
1976	1,123.8	.	.	.	.

Source: Based on H. Peisert and G. Framhein, Systems of Higher Education: Federal Republic of Germany, New York: International Council for Educational Development, 1978, p. 201 (1961-1975); Bundes-minister

and the immediate consequences reads: "The construction and expansion of higher education establishments, the promotion of supraregional planning of research and education were grounded in the Basic Law as joint tasks of the federal government and the Länder. In addition, the federal government was empowered to draft a law setting forth the general principles of higher education. Another change bearing on educational policy is the federal government's newly acquired legislative authority to control educational grants".[1]

In the same year the Higher Education Construction Act was passed. This

[1] Bundesminister für Bildung und Wissenschaft, Jahresbericht 1969, Bonn 1970 p. 6.

Educational Expenditure and Expenditure on Higher Education 1961-1976

Educational expenditure			Expenditure on higher education		
Billion DM	Index	Per cent of GNP	Billion DM	Index	Per cent of GNP
9.0	100	2.7	1.7	100	0.5
10.2	113	2.8	2.1	124	0.6
11.7	130	3.0	2.4	141	0.6
13.8	153	3.3	2.9	171	0.7
15.7	174	3.4	3.5	206	0.8
17.0	189	3.5	3.7	218	0.8
17.8	198	3.6	4.0	235	0.8
19.1	212	3.5	4.4	259	0.8
22.2	247	3.7	5.3	312	0.9
27.6	307	4.0	6.9	406	1.0
34.7	386	4.6	8.4	494	1.1
39.1	434	4.7	9.4	553	1.1
44.5	494	4.8	10.7	629	1.2
52.6	584	5.3	12.8	753	1.3
56.2	624	5.4	13.5	794	1.3
58.2	.	5.2	13.6	.	1.2

für Bildung und Wissenschaft, Grund- und Strukturdaten 1978, Bonn 1978, pp. 154, 192 (1976).

legalized the heavy federal subsidies for construction in higher education which had started on a federal-state contract basis in 1964. The Planning Committee for Construction in Higher Education (Planungsausschuss für den Hochschulbau) established in 1970 on this legal basis became the decisive body for quantitative planning in higher education, presenting annual recommendations.

In November 1969, the former Federal Ministry for Scientific Research was renamed the Federal Ministry of Education and Science, supplemented by the establishment of an additional Department of Educational Planning. In 1970, federal and state governments signed a contract providing for the establishment of a Federal-State Commission for Educational Planning (Bund-Länder-Kommis-

sion für Bildungsplanung) (BLK) and the federal government announced a draft version of the Framework Act for Higher Education[1].

In 1969/70 a break-through - though short-lived - of a high-growth higher education policy could be observed. As Table 20 shows, the growth rates of expenditures on higher education from 1969 until 1971 surpassed that of the GNP and of the public expenditures in general, and this more than at any time in previous years or even afterwards.

In February 1970, the German Council for Education (Deutscher Bildungsrat) presented a long-term plan for the structural development of the educational system. The Council had been established in 1965 as the highest advisory body on the education system, except for higher education. In its recommendations, the Council proposed the promotion of individual talents to the highest possible extent even if educational policy should cause conflicts in terms of manpower notions. The financial recommendations rested on the assumption that in 1980, 25-35 per cent of the corresponding age group would attend the final grade of secondary school[2] (as compared to 11 per cent in 1970 - see chapter 3, Table 6,)

In June 1970, the Science Council announced its recommendations on the quantitative and structural development for the following decade[3]. The quantitative data had been, to some extent, co-ordinated with the recommendations of the German Council for Education, although the Science Council did not share the goals mentioned above. The Science Council expected an enrolment ratio of 25 per cent of the corresponding age group for 1980 and an increase in the total number of students (including teacher colleges, Fachhochschulen, etc.) from 438,200 in 1970 to 846,500 - 988,300 in 1980[4]. It encouraged a stronger occupational orientation of higher education and the increase of short-cycle higher education; according to its estimates the tripling of the percentage of the GNP spent on higher education seemed to be necessary within a decade.

In June 1970, the federal government presented a report on the state of the educational system and made public its recommendations for future research. In the foreword, the then Chancellor Willy Brandt stressed that economic as well as social goals were the basis of the federal government's policy; the explanation of educational goals in the report, however, stresses mostly equality of opportunity and individual advancement. Considerations relating to the labour

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[1] Cf. the overview in Ulrich Teichler, "University Reform and Skeleton Legislation on Higher Education in the Federal Republic of Germany: Breakdown of the Skeleton Legislation on Higher Education," Western European Education, Vol. 5, No. 4, 1973-4, pp. 34-7.

[2] Deutscher Bildungsrat, Strukturplan für das Bildungswesen, Bonn 1970, p. 305-6

[3] Wissenschaftsrat, ed., Empfehlungen zur Struktur und zum Ausbau des Bildungswesens im Hochschulbereich nach 1970, Vol. 1, Bonn 1970.

[4] Cf. the synopsis of forecasts during the early seventies in Gerhard Brinkmann et al., Bildungsökonomik und Hochschulplanung, Darmstadt: Wissenschaftliche Buchgesellschaft, 1976, pp. 15-47.

market are mentioned only very briefly. The government expressed its intention to support structural and quantitative changes which were quite close to those suggested by the German Council for Education and the Science Council. The federal government also demanded the removal of enrolment restrictions in higher education; every qualified applicant at institutions of higher education should be able to enroll after one year of waiting, at most, in the field of study of their choice[1]. The Federal-State Commission for Educational Planning (BLK), founded that year, was expected to present a comprehensive plan in 1971 incorporating the proposals mentioned above. As will be shown in the next section, however, disputes about the goals proved to be stronger than expected in 1970; finally in 1973, the BLK came forward with a more moderate proposal as regards the expansion of secondary and tertiary education.

Today, many observers claim in retrospect that in 1970 the public opinion in the Federal Republic of Germany, the advisory bodies, and most politicians as well, were in favour of an almost indefinite expansion of academic secondary education and higher education and they believed that this expansion would meet the requirements of the occupation system. It can be shown however that this is misleading.

Employers' representatives continued to conjure up the danger of an academic proletariat[2]. According to this view, the number of graduates not finding an appropriate position would find very miserable conditions for their occupational career and due to their disappointment would become an overall social problem.

The manpower requirement forecasts of the late sixties had caused a heated debate among researchers and politicians. The Science Council considered far-reaching changes in higher education courses to be necessary in order to avoid a mismatch in the labour market. Those favouring an "active educational policy" did not consider that the demand in conventional terms would be much higher, and supported the expansion of higher education in order to cope with new tasks of the society, the desirability of upgrading and a change in the nature of the jobs by the graduates themselves[3]. Several state governments were reluctant from the outset to support the above-mentioned proposals of 1970. The German Council for Education was aware of the likely conflicts of such an education policy in terms of manpower requirements, but suggested educational

[1] Bundesminister für Bildung und Wissenschaft, Report of the Federal Government on Education 1970, op. cit. pp. 159-161.

[2] See, for example, Winfried Schlaffke, "Akademisches Proletariat?" Berichte des Deutschen Industrieinstituts zu bildungs- und gesellschaftspolitischen Fragen, Vol. 2, No. 1, 1970.

[3] See, for example the essays by Hans-G. Rolff and the Manpower-Projektgruppe in K. Hüfner and J. Naumann, eds., Bildungsplanung: Ansätze, Modelle, Probleme, Stuttgart: Klett, 1971. For a general overview on the reform conceptions at that time cf. Klaus von Dohnanyi, ed., Die Schulen der Nation, Düsseldorf: Econ., 1971.

expansion for the sake of individual development, equality of opportunity and democratization of the society.

The federal government took a similar stand: "In the first two post-war decades, efforts were concentrated on a successful material reconstruction in the Federal Republic of Germany. This rebuilding went hand in hand with the restoration of traditional intellectual, cultural and political concepts. The socio-political shortcomings have now to be made up for, and new goals set"[1].

The uncertainty felt at that time about the future of university graduates in the process of rapid expansion of the education system is expressed in a report of an experts' meeting held in 1969 on higher education reforms: "Questions become urgent which yet remain to be answered. How will social selection and attitudes of students change, if a college degree no longer guarantees elite positions? Does the education system lose its rôle of channelling social opportunities after the period of expansion? What are the functions and content of education beyond the (presumed) demand in the creation of new academic competences, the meaning of which can be hardly understood now? Does over-qualification in turn call for new types of relevant work? Does superfluous knowledge cause job dissatisfaction and pressure for adaptation? Is an education useful only within the occupational sphere? Will upgrading have an impact on work beyond just raising the prerequisites for certain jobs? Do rapid changes of the occupational structure and the quick obsolescence of the required knowledge promote a system of life-long higher education?"[2]

Changing relationships between the higher education and the employment systems, as a consequence of higher education expansion, had been expected around 1970. The views were, however, more vague than today and in many instances more optimistic as regards utilization of the acquired knowledge.

YEARS OF DISPUTES ON STRUCTURE, FINANCES AND PROSPECTS OF GRADUATES (1971-1975)

The short period of setting far-reaching goals of expansion was followed by years of disputes on education policy. It took the BLK three years to find, finally in 1973, a compromise on quantitative and structural planning of the education system for the period until 1985. The debate on the Framework Act for Higher Education lasted five years, and was finally enacted in December 1975.

It was obvious that the quantitative and structural goals set by the highest advisory bodies and the federal government had not been based on a compromise fully worked out among all the major political parties and powerful social groups. The measures taken to strengthen higher education planning at the federal level required a high degree of consensus among the federal government and the states'

[1] Bundesminister für Bildung und Wissenschaft, Report of the Federal Government on Education 1970, op. cit., p. 226.

[2] Ulrich Teichler, "Einleitung", in U. Teichler, ed., Faktoren und Zielvorstellungen der Hochschulreform in der Bundesrepublik Deutschland, op. cit., p. 14.

governments: for decisions of any sort a consensus of the federal government and more than two-thirds of the states' governments is a prerequisite. But even the decisions thus agreed upon are not necessarily binding for all the involved governments[1]. As the Social Democratic Party and the Free Democratic Party together formed the federal government since 1969 and the opposition party at the federal level gained the majority of the states' governments in the early seventies, lack of consensus was prevalent. Major decisions, such as the admission policy and the voting rights of professors in university commissions, were not made by the political or legislative authorities but by the Federal Constitutional Court[2]. Further, it soon became clear that most of the supporters of the proposed reforms were frightened of the costs involved. Finally, the development of higher education in relation to the labour market during the early seventies meant that the positions of those in favour of far-reaching expansion goals and reforms in higher education would weaken.

As to the quantitative development of higher education, the BLK intended originally to follow the recommendations of the Science Council. Major reasons for the modification of the targets were "the 1972 statement of the Advisory Council for Public Finances (Finanzplanungsrat) and later of the Conference of the Prime Ministers of the Länder that the original BLK-targets for educational expansion could not and would not be financed"[3]. The Commission finally recommended in spring 1973 an expansion in the capacity of higher education sufficient to enroll in 1980 the share of 20-22 per cent beginner students of the corresponding age group[4], instead of 25 per cent recommended by the Science Council. This meant only a marginal rise from 1973 in which 19 per cent had enrolled. The target set by the BLK for 1985 counted 22-24 per cent.

Two years later the Planning Committee for Construction in Higher Education further levelled down the targets: Instead of the capacity for about 1 million students in 1985, it was decided to create facilities for 850,000[5]. The number of students had grown from 510,000 in 1970 to 850,000, and was still expected to rise even further as this plan was published. According to the Science Council, three arguments had supported this decision:

> "-The present target values exceed the present financial capacity of the federal government and the states.

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[1] See Peisert and Framhein, op. cit., pp. 43-4

[2] In 1973 the Federal Constitutional Court ruled that freedom of Wissenschaft is guaranteed only when the professors - the senior teaching staff - are assured a majority vote in all important decisions relating to research, examinations etc. in university bodies. Bundesverfassungsgericht, Urteil des Ersten Senats vom 29 Mai 1973 - 1 BVR 424/71 - 1 BVR 325/75, mimeogr.

[3] Hüfner, Köhler and Naumann, op. cit., p. 77

[4] Bund-Länder-Kommission für Bildungsplanung, Bildungsgesamtplan, Vol. I, Stuttgart: Klett, 1973, pp. 43-5.

[5] See Planungsausschuss für den Hochschulbau, Fünfter Rahmenplan für den Hochschulbau 1976-1979, Bonn 1975.

- The target values do not sufficiently take into account the birth rate and its effect on the number of student applicants and students after 1985.

- ... the number of graduates from institutions of higher education would be out of proportion to the labour market"[1].

Due to the economic difficulties since the autumn of 1973, the planning committees tended to be more cautious as regards financing of higher education and the labour market prospects of graduates. In the public debate, however, the demographic argument was given priority: As the live births had declined since the mid-sixties, facilities created beyond the proposed target would not be used any more in the nineties. Instead, the peak number of students' ought to be "tunnelled" in the eighties by 120 and 160 per cent.

The first effect of the more restrictive planning in higher education was a slight decline in the number of teaching staff since 1974, which had risen at a much faster rate than the number of students in the early sixties and then had followed the rate of expansion of student numbers closely[2].

During the early seventies the debate on quantitative planning in higher education focussed on the admission policy. Article 12 of the Constitution, stating that "all Germans have the right to choose freely a profession, a work place and an institution of education," for a long time had been interpreted as the absolute right of students completing the academic track of secondary education to enroll at any university in any field. The states, however, hesitated to provide facilities according to social demand, especially in those fields where the unit costs proved very high. In medicine, where the costs for one student are twelve times as high as in social sciences (see Table 21), restricted admission (numerus clausus) began in 1963, but the restriction spread rapidly to other subjects during the early seventies. In July 1972 the Federal Constitutional Court made public a decision on numerus clausus. The judgement in effect represented a compromise between the demands of open university admission for qualified applicants and restricted admission due to financial and manpower notions.[3] The court determined that restricted admission was justified only

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[1] Peisert and Framhein, op. cit., p. 74

[2] Ibid., pp. 78-9; cf. Bundesminister für Bildung und Wissenschaft, ed., Bildungspolitik: Antwort der Bundesregierung auf die Grosse Anfrage der Fraktionen von SPD und FDP im Deutschen Bundestag zur Bildungspolitik, Bonn 1978, pp. 49-50.

[3] On university admissions in West Germany cf. Holger Asche, Jürgen Lüthje and Erich Schott, Der Numerus clausus oder Wer darf studieren? Reinbek bei Hamburg: Rowohlt, 1973; Horst Bahro, Willi Becker, and Josef Hitpass, op. cit.; "Hochschulzugang", Studentische Politik, Vol. 8, Nos. 6-7, 1975; Leo Friedrich and Karl Köhler, eds., Zeugnisnoten und Numerus clausus, Kronberg, Ts.: Scriptor, 1975; Andreas Flitner, ed., Der Numerus clausus und seine Folgen: Auswirkungen auf die Schule, die Schüler, die Bildungspolitik - Analysen und Gegenvorschläge, Stuttgart: Klett, 1976; Willi Becker, op. cit.

TABLE 21 Expenditure per Student, According to Type of Institutions and Area of Study, 1975 (in DM)

ea of Study (and spective proportion students in all ininstitu- ns of higher education)		Expenditures in University, Teachers college	Comprehensive university	Short-cycle institutions	Average for all institutions
manities, heology	(27.4%)	4,900	3,300	4,700	4,800
, social sciences	(23.2%)	2,900	2,300	2,200	2,700
ural sciences, athematics	(16.9%)	12,100	8,000	13,400	12,000
gineering	(19.0%)	10,000	3,400	5,100	7,200
dicine (including % of university inics)	(6.3%)	36,800	-	-	36,400
ricultural sciences	(2.2%)	13,900	8,900	8,300	12,800
e arts	(5.0%)	1,500 (10,360)†	3,100	2,300	4,800
tal (including ntral expenditure institutions)		13,600	11,700	6,900	12,400

rce: H. Peisert and G. Framhein, Systems of Higher Education: Federal Republic of Germany, New York: International Council for Educational Development, 1978, p. 89.

colleges of fine arts.

provided the existing facilities were utilized to the fullest extent; other necessary government tasks would suffer too much from the financial burden of higher education and the development of higher education would contradict manpower requirements, as far as these can be clearly determined".

In October 1972, the State signed a treaty on the distribution of places for study. It was fixed that - aside from certain quotas for foreigners and for hardship cases - 60 per cent of the places of numerus clausus subjects would be awarded on grade-point average of school certificates and 40 per cent according to waiting time after the completion of secondary education. In order to maintain restricted admission the government felt compelled to introduce strict regulations as regards the measurement as well as the utilization of capacity of institutions and to commission an unprecedented number of requirement forecasts.

The new wave of requirement forecasts, however, did not prove very useful for legitimizing restricted admission, as will be shown in detail later in chapter 6. Because most requirement studies took into consideration alternative models of development as well as potential for substitutions, they could only support the fear of overexpansion, but the range of possible future developments indicated did not exclude the possibility of full absorption of the graduates in the labour market.

Although expectations of an oversupply of university graduates played a rôle in reducing the targets of higher education expansion, higher education policy did not primarily intend to reduce the number of graduates even after the economic problems showed up in 1973. Rather, the compromise fixed in the Framework Act for Higher Education in 1975[1] called for a more effective utilization of the facilities in order to offer a larger number of people the opportunity to study under given financial constraints. The Framework Act called for regulations to: (i) prevent students from practising a Parkstudium (waiting time before enrolment in the subject of the first choice spent in another field of study) (ii) reduce the length of study by means of introducing a fixed time span (Regelstudienzeit) in which studies must be completed, (iii) increase of short-cycle courses. In addition, the scholarship regulations were changed in order to discourage the transfer from one field of study to another or enrolment at university after the completion of short-cycle higher education[2].

Some planners estimated that if these measures were effective, the total number of students could be increased by about one-third without any additional expenditures for the higher education system. This estimate was justified because when these measures were put into effect, more than 20 per cent of students changed their field of study, 20-30 per cent of short-cycle graduates

[1] Cf. Bundesminister für Bildung und Wissenschaft, Framework Act for Higher Education (Hochschulrahmengesetz), Bonn, s.t. (1976). The Act also was published in a periodical: "Higher Education Framework Law of January 26, 1976 (Federal Republic of Germany)," Western European Education, Vol. 8, No. 3, 1976, pp. 60-115.

[2] For the present regulations see Bundesminister für Bildung und Wissenschaft, Studenten Service Broschüre, Bonn 1978.

transferred to university studies, and more than 60 per cent of beginner students chose subjects which require four years of studies or more. Also, it may be of interest to note that university students spent two years more on average than required until their graduation.

The political and planning agencies agreed to promote the expansion of short-cycle higher education. The BLK for instance suggested that the number of beginner students at three-year courses ought to increase from about one-quarter to about one-third of all the beginner students in 1985. However, the percentage remained more or less constant during the seventies at about 26-27 per cent[1]. The up-grading of former higher vocational schools to non-university level institutions of higher education did not make these institutions much more attractive, but rather caused a serious identity crisis, as also can be observed at similar institutions in other countries[2]. The institutions neither kept their traditional strength - the occupational experience preceding this semi-professional education, highly appreciated by employers - nor reached the often desired goal of offering an academic education close to that of the universities[3]. The federal government and the Science Council therefore proposed in the mid-seventies establishing three-year courses in universities[4]. They hoped that in this way the number of fields of studies offering short-cycle courses could be more easily enlarged and that the short-cycle course would gain more attraction. The Framework Act for Higher Education supported such models. These proposals were given priority in the compromises reached among the agencies involved in higher education planning only after one major aim of higher education reform, which was considered essential around 1970, had been given up: to integrate university-level and non-university level higher education in comprehensive universities (Gesamthochschulen).[5] The idea of

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[1] Cf. Geschäftsstelle des Wissenschaftsrats, op. cit., p. A/7

[2] See Dorothea Furth, "Short-cycle Higher Education: Some Basic Considerations," in Short-cycle Higher Education: A Search for Identity, Paris: OECD, 1973, p. 13-42.

[3] See Ulrich Teichler, "Struktur des Hochschulwesens und 'Bedarf' an sozialer Ungleichheit," Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 7 No. 3, 1974, pp. 197-209, esp. pp. 205-6.

[4] See Bundesminister für Bildung und Wissenschaft, Bildungspolitische Zwischenbilanz, Bonn, s.t. (1976), p. 74; Wissenschaftsrat, Empfehlungen zu Umfang und Struktur des Tertiären Bereichs, Bonn 1976.

[5] Cf. the overviews on the plans and realization of comprehensive universities in Wolfgang Kramer, "Zum Problem der Gesamthochschule," Berichte des Deutschen Industrieinstituts zu bildungs- und gesellschaftspolitischen Fragen Vol. 4, No. 3, 1972; International Association of Universities, Problems of Integrated Higher Education: An International Case Study of the Gesamthochschule, Paris 1972; "Gesamthochschule" (special issue), Studentische Politik, Vol. 8, Nos. 1-2, 1975; Ludwig Gieseke and Rupert Eilsberger, The Development of the Comprehensive University in the Federal Republic of Germany, Strasbourg: Council of Europe, 1977, mimeogr.; Helmut Winkler, Zur Theorie und Praxis der Gesamthochschulplanung, München: Minerva, 1978.

setting up comprehensive universities in order to upgrade short-cycle higher education was to ease the transfer to university education and to confront both the traditional principles of research-oriented teaching at universities and the vocation-oriented education at the higher vocational schools. Many proposals were made ranging from full integration of institutions, teaching staff and courses, whereby two types of degrees would be kept in practice, to organizational co-ordination similar to some state systems of higher education in the United States. Around 1970 the idea of a comprehensive setting was so popular that even opponents of integrated courses at least favoured the so-called Kooperative Gesamthochschule[1]. Very soon, however, the desire gained ground again to retain distinct types of higher education courses.[2] In 1975, only four per cent of the existing institutions of higher education had been named comprehensive universities and enrolment figures equalled only six per cent of the total for higher education.

It should be mentioned, however, that the debate on higher education reform at that time did give priority to the internal structure and organization. The organizational changes in the late sixties had been succeeded by what was called "politicization" of higher education: the formation of political groupings among the staff and the students, the continuous confrontation of different concepts of higher education in the decision-making processes, turmoil at some institutions and the spread of theories expressing overtly the impacts of socio-political concepts on research approaches. This, in turn, increased the mistrust of employers and the public as regards the universities. In the long run, it also strengthened the positions of those both in as well as outside the universities who were reluctant to support far-reaching reforms in higher education. It is widely assumed that this change of political climate increased the problems university graduates had to face on the labour market.

In 1975, a further cut-back of reform goals seemed to be likely in the near future, as well as a further decline of the targets of study places; and there were rapidly growing problems of graduates on the labour market. In 1975 and spring 1976, private and public employers, the Federal Association of German Employers (Bundesvereinigung der deutschen Arbeitgeberverbände)[3] and the Conference of the Ministers of Finance (Finanzministerkonferenz),[4] made public a number of most pessimistic forecasts about the mismatch of supply and demand for highly

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[1] See the short summary of the early debate in Ulrich Teichler, "Problems of West German Universities on the Way to Mass Higher Education," op. cit., pp. pp. 97-102.

[2] According to the Framework Act for Higher Education, normally the institutions should become comprehensive universities, but the Act kept the option open to retain separate institutions. Since its enactment in 1976, no further comprehensive university has been established.

[3] Bundesvereinigung der Deutschen Arbeitgeberverbände, Bedarf der privaten Wirtschaft an Akademikern: Eine Tendenzanalyse, Köln 1975.

[4] Statement of the Meeting of the Conference of Ministers of Finance held on March 25, 1976.

qualified labour ever made in the Federal Republic. According to these forecasts, only about one-third of the graduates of institutions of higher education in the eighties would be able to find suitable jobs[1].

SIGNS OF ADJUSTMENT TOWARDS HIGH NUMBERS OF STUDENTS AND GRADUATES (1976-1979)

Contrary to the expectations prevailing around 1975 that conflicts stirred up by the expansion of higher education would grow, the development in the Federal Republic of Germany since 1976 showed actually remarkable signs of adjustment towards the high number of students at institutions of higher education. This was also true for the large share of the labour force trained at institutions of higher education. The tone of the debate remained harsh[2], but the different views converged somewhat and many more compromises were reached on higher education and manpower planning than in the early seventies. Some of these new developments will be taken up in the following chapters.

Changes in attitudes and new compromises relevant to the relationship between higher education and the employment system took place especially with regard to the following: admissions, coping with demographic curves, enrolment trends, manpower requirement forecasts, measures in order to absorb the growing number of college graduates, recruitment of graduates, curricular reform and attitudes on expenditure on higher education.

As regards to admissions to higher education, many politicians and planners had certainly expected that all persons and groups concerned would gradually accommodate with restricted admissions, as has been the case in many other countries. The mismatch between applicants and study places grew at such a fast rate that in 1974 a complete numerus clausus was predicted for 1976. However, this did not in fact materialize. The competition rate at the peak of this development is shown in Table 22. Complaints were heard about the unbearable pressure for achievement in schools[3]. Also, the admissions situation grew absurd with the rising number of students; in the most serious cases, applicants had to wait seven years before they could enroll[4]. Finally, in February 1977, the Federal Constitutional Court raised again its voice on principles of university admissions, repeating its view that the right for qualified

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[1] See Teichler and Voss, op. cit., p. 39

[2] See, among others, Helmut Becker et al., Die Bildungsreform - eine Bilanz, Stuttgart: Klett, 1976; Erich Frister et al., Bildungssystem und Berufsaussichten von Hochschulabsolventen, Stuttgart: Verlag Bonn aktuell, 1978; Winfried Schlaffke, "Krisenmanagement im Bildungswesen - die Aufgaben in Probleme der achtziger Jahre", Deutsche Universitätszeitung, No. 16, 1977, pp. 502-6.

[3] See the summary of arguments in Flitner, op. cit.

[4] See the description of the problems of admissions system established in 1972 by W. Becker, op. cit., pp. 7-23.

TABLE 22 Competition Rate in Selected Fields[1] of Study at Universities, Winter 1976/77

Field of study	Competition rate[2]
1. Dentistry	8.15
2. Veterinary medicine	6.61
3. Medicine	5.70
4. Pharmacy	5.29
5. Psychology	4.17
6. Sports	3.85
7. Nutrition	3.54
8. Surveying	2.70
9. Biology	2.38
10. Agriculture	2.25
11. Architecture	2.18
12. Education	1.94
13. Commerce	1.93
14. Vocational education	1.80
15. Mechanical engineering	1.64

Source: Own computation based on Geschäftsstelle des Wissenschaftsrat, Empfehlungen zum neunten Rahmenplan, Entwurf, Köln, Mai 1979, mimeogr., pp. A/35 and A/39.

[1] Included are those fields of studies at universities administered by the Central Admissions Agency in which the competition rate exceeded 1.5.

[2] Competition rate = number of applicants/number of study places for beginner students.

secondary school-leavers to enroll had to play a more dominant rôle in admissions. It refuted the notion that the introduction of admissions tests would be able to justify the numerus clausus more readily[1].

At a conference held in winter 1975/76 (under the sponsorship of the Foundation for German Research, an organization close to employers) with the purpose of

[1] The court considered a 50 per cent weighing of grade point average and admission test score as contradictory to the Constitution because this would exclude totally the possibility of students with bad grade point average from admission in highly selective fields.

re-opening the dialogue on education between influential political and social groups[1], the demographic argument found a reversed application. The advisory and planning bodies had argued up to this date that limitations of university capacity were necessary in order to avoid superfluous capacities after the demographic peak. However, the Director of the Institute for Labour Market and Occupational Research, Mertens, argued that an undersupply of educational facilities during the peak period would lead to "displacement" processes in vocational education. Thereby those not having a chance to enroll would turn to vocational education below the college level; finally a growing number of main school students would be excluded from any vocational training whatsoever. According to his view, an opening up of all institutions of education and training courses was necessary in order to guarantee at least some vocational education to all those wanting to be trained[2]. These arguments were met with a surprisingly favourable response.

The fact that election for the Federal Parliament was scheduled for autumn 1976 proved to be favourable, as many observers agree, to a change of attitude among politicians. The arguments in favour of saving expenditures on higher education were suddenly balanced, to some extent at least, by the widespread educational aspirations and concerns about growing pressures in education. All the political parties, as well as major planning and advisory groups, employers and trade unions and most of the bodies and groups representing the interest of institutions of higher education, their staff and students, agreed that a policy of "opening up of universities" (Offnung der Hochschulen) ought to be chosen, reducing restrictions of admission as well as accepting temporary overcrowding of the institutions of higher education[3].

In November 1977, the federal and states' governments agreed formally upon an action programme. Among others, they prepared measures to reduce numerus clausus, to increase expenditures on higher education, to reform curricula, to improve counselling and to better the job opportunities of college graduates[4]. This change of attitude of state governments, planners and politicians did not of course reflect only the pressures against restrictive planning of higher education; other factors were also taken into consideration. Among the factors involved, a change in the enrolment trends has to be mentioned. Statistics in the mid-seventies

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[1] Stifterverband für die Deutsche Wissenschaft, Schülerberg und Ausbildung, Stuttgart, Klett 1976.

[2] Gerhard Kühlewind, Dieter Mertens and Manfred Tessaring, "Zur drohenden Ausbildungskrise im nächsten Jahrzehnt," in Stifterverband für die Deutsche Wissenschaft, ed., Schülerberg und Ausbildung, op. cit. pp. 26-40; See also Dieter Mertens, Friedemann Stooss and Manfred Tessaring, "Möglichkeiten zur Deckung der Ausbildungslücke in den kommenden Jahren," Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 10, No. 1, 1977, pp. 125-142.

[3] See the collection of documents in Teichler and Voss, op. cit.

[4] See Reimut Jochimsen, "Aims and Objectives of German Vocational and Professional Education in the Present European Context," in A. Hornsey, ed., Education and Working Life: Report of an Anglo-German Conference held at the University of London Institute of Education 22-24 April, 1978, London, 1978, pp. 22-37.

showed that the enrolment quota of the corresponding age group had remained more or less constant since 1972, and that the absolute numbers were lower than previous estimates by the Science Council. Therefore, a higher intake of students was considered possible, provided the measures were effective in reducing the average length of study.

Also, the debate on manpower requirements began to show at least some signs of turning away from extremly divergent positions. As regards the theories and methods of requirement forecasts and their utility for planning, the view became popular that forecasts might be an important information basis provided they do not only rely on estimates of economic growth but also on surveys on the utilization of labour, on alternative models of socio-political goals and developments as well as possible substitution processes in the labour market[1]. As for the views on the future of graduates, both the arguments of a growing academic proletariat and the expections that a full utilization of the competences of the rising number of students was likely, were now seldom stated[2].

Instead, debates concentrated on the question of which substitution processes were likely, and which desirable. Disputes continued about possible frictions on the labour market and the consequences of upgrading processes, as will be discussed in detail in the following chapters. Critics of the expansion of higher education argued, for instance, that most graduates face the prospect of inappropriate jobs. According to their view, not only the expectations of the graduates will be disappointed, but also those not enrolling at institutions of higher education suffer because many of them would be "displaced" by persons with a higher education level. Also debate arose whether a "de-coupling" of the education system from the occupation system was necessary and desirable in order to cope with the rising number of college graduates. But at least adaptation processes towards changing relationships between higher education and employment were considered more likely than some years before, in spite of the less favourable economic conditions of that time.

In the course of this development some consensus would be reached with the argument that, no matter whether the expansion of higher education was desirable

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[1] This conclusion often was drawn in public statements given by politicians; cf. also Deutscher Bundestag, 8. Wahlperiode, Ausschuss für Bildung und Wissenschaft, Anhörung von Sachverständigen zum Thema "Bildungs- und Beschäftigungssystem": Protokoll Nr. 15, Bonn 1977, mimeogr.

[2] There were some views, however, according to which expansion of higher education was appropriate in order to meet long-term requirements beginning in the nineties; see, for instance, Dieter Mertens, "Zur Diskussion über das Verhältnis zwischen Bildungs- und Beschäftigungssystem: Entwurf für einen Satz Spielregeln," in Stifterverband für die Deutsche Wissenschaft, ed., Bildungsexpansion und Beschäftigungsstruktur am Beispiel des Abiturientenproblems, Essen-Bredeney 1976, pp. 9-30; Erich Frister, "Strukturveränderungen in der Wirtschaft und ihre Auswirkungen auf das Bildungssystem," in Frister, et al., Bildungssystem und Berufsaussichten von Hochschulabsolventen, op. cit. pp. 94-113.

or not, some co-ordinated measures must be taken in order to reduce the frictions of the labour market caused by the rising number of graduates. This became evident in a surprisingly high number of hearings, symposia and public statements on these problems[1]. No matter whether the past educational policy was right or wrong, the graduates were there and faced problems. There was a consensus among politicians, planners, employers and trade unions that the absorption of graduates could not be solved sufficiently under the existing conditions of the labour market, but some co-ordinated action was needed such as proposals for changing the recruitment, career and remuneration patterns in the public and private sectors, setting up emergency programmes, financing new tasks for graduates etc. In addition, all parties and groups involved seemed to agree that the problems should not be considered as just the risk of those graduating during the seventies, but that their fate was a problem of common concern and responsibility. Attitudes changed further concerning expenditure on higher education. First, the argument gained ground that prolonged study by a student does not absorb many more facilities than conclusion of study within the regular period; second, the costs of one student-place (including scholarships) looks less impressive if compared to the unit costs of an unemployed person. Although the government agencies insisted not to shape educational policy according to possible custodial functions, those financial arguments were quite successful. For example, in 1979 the political parties began preparing an amendment to the Framework Act in order to abolish regulations forcing students to leave college if they prolonged their studies beyond a certain period of time.

A remarkable shift could be observed insofar as the statements of private employers' representatives on the recruitment policy of companies were concerned. Until the mid-seventies complaints about an oversupply of graduates dominated, but in the late seventies most employers' representatives would argue that the growing number of graduates could be absorbed provided the students would level down their expectations and become more flexible, that curricular reform took into account the needs of the economy, and that a clear-cut difference between university education on the one hand and vocationally oriented short-cycle higher education at Fachhochschulen on the other would be preserved. For example in the first comprehensive plan for education reform by employers, which was presented in 1979 by the Institute of the German Economy in Cologne, a college enrolment quota of 25 per cent was taken for granted[2].

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[1] See Deutscher Bundestag, op. cit., Bundesminister für Bildung und Wissenschaft, Antwort der Regierung auf die Grosse Anfrage der Fraktionen von SPD und FDP im deutschen Bundestag zur Bildungspolitik, op. cit., CDU, Zukunftschancen der jungen Generation: Protokoll des Hearings am 22. 6. 1977 in Bonn, Bonn 1977; "Berufsaussichten junger Hochschulabsolventen" Deutscher Bundestag, Drucksache 81860, Bonn 1977; - "Studium - was dann?" in uni, Vol. 9, No. 4, 1978; Freie universität Berlin, ed., Arbeitsmarkt für Hochschulabsolventen, Berlin 1978; Frister et al., op. cit.; Stifterverband für die Deutsche Wissenschaft. Zwang zur Bildungspolitik - Mut zur Bildungspolitik, Essen 1979.

[2] Uwe Gobel, Winfried Schlaffke and Reinhard Zedler, "Das Bildungssystem der achtziger Jahre", in U. Göbel and W. Schlaffke, eds., op. cit., p.69.

In general, the mood for compromises in educational policy grew in the late seventies in spite of overt controversies, and it seems justified to point out three major reasons for this. Firstly, the fear was growing among politicians engaged with matters concerning education that further political deadlocks would increase the difficulties for the education system in general; it had lost its short-lived status of high political priority anyway, and continuous disputes would strengthen the inclinations to further reduce the expenditures in general for education. Secondly, it was felt that the disputes on educational reforms and on the mismatch of education to employment tended to discourage a whole generation. The view became widespread that growing apathy and desperation amongst youth might be more detrimental than sub-optimal manpower planning. Thirdly, the development of the system of higher education itself disappointed to a great extent the high expectations for sweeping reforms as well as desires to preserve the traditional system. In general, debates in institutions of higher education and in the public became more moderate. Politicians stressed three formulae of compromise:[1]

1. Vocational education deserves priority in educational policy now, because this part of the system had not been paid appropriate attention around 1970.

2. The system of education, including higher education, should be opened up in order not to restrict the opportunities of the present young generation.

3. After a period of quantitative expansion, priority should be given to qualitative reforms[2].

Two major problems of higher education relevant to the relationship between higher education and employment did not show signs of compromise. As regards the structure of higher education, the Science Council presented in 1978 detailed proposals to establish a system of short-cycle courses within universities[3]. These met with opposition on the part of many representatives of universities who were anxious about serious consequences for university education in general. On the other hand, employers argued that there was no room for a third profile

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[1] See especially Bundesminister für Bildung und Wissenschaft, Zukunftschancen der jungen Generation in der Bildung und im Beruf, Bonn 1976; Bundesminister für Bildung und Wissenschaft, Bildungspolitische Zwischenbilanz, op. cit.; Kommission für wirtschaftlichen und sozialen Wandel, Wirtschaftlicher und sozialer Wandel in der Bundesrepublik Deuschland: Gutachten der Kommission, Göttingen: Schwartz 1977; CDU, Hearing des Bundesfachausschusses Kulturpolitik "Zukunftsorientierte Berufe", Bonn 1978; Göbel, Schlaffke and Zedler, op. cit.

[2] See, among others, Bundesminister für Bildung und Wissenschaft, Orientierungspunkte zur Hochschulausbildung, Bonn 1978.

[3] Wissenschaftsrat, Empfehlungen zur Differenzierung des Studienangebots, Bonn 1978.

of competence between the university graduate and the graduate of the Fachhochschule[1].

As regards curricular reforms, central commissions for study reform were established in 1978 on the basis of the Framework Act for Higher Education. This Act, in stating the aims of higher education had emphasized to a great extent the occupational orientation. Political parties, employers and trade unions stressed a growing readiness for a dialogue on curricular reforms in higher education; but many university respresentatives pointed out the danger of inappropriate control from above.

In 1979, the Federal-State Commission on Educational Planning and Research Promotion presented the draft of its Second Comprehensive Plan for Education[2]. As Table 23 shows, the BLK foresaw a slightly higher quota of beginner students among the corresponding age group in 1985 than in its previous plan published in 1973: 22.8-25.6 per cent instead of 22-24 per cent. For the year 1990, the BLK estimated an increase in the quota up to 23.0-27.7 per cent. Also the estimates of the total numbers of students in 1985 were about 10 per cent higher in the 1979 plan than in the 1973 plan. It should be noted, however, that the BLK foresaw an extremely rapid increase in enrolment at Fachhochschulen after 1978.

The BLK proposals showed that the concern about the growing numbers of students had toned down during the late seventies. The educational planners at federal and state level, after some years of concern about how to cope with the numbers of secondary school leavers, had opened up the debate again on extending functions of higher education, especially in the field of further education[3].

It deserves observation for the time being whether these compromises, obviously not sustained by a basic consensus on education and manpower matters will last very long.

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[1] Bundesvereinigung der Deutschen Arbeitgeberverbände, Fachhochschule - Kurzstudiengänge: Gedanken zur Differenzierung der Studiengänge, Köln 1978; Winfried Schlaffke, "Berufschancen für Akademiker - Forderungen und Erwartungen aus der Sicht der Wirtschaft", op. cit., pp. 181-208

[2] Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung, Fortschreibung des Bildungsgesamtplans (Bildungsgesamtplan II), Entwurf Stand, June 1979, pp. II A 5/7-10. Research promotion had been added to the tasks of the BLK in 1975.

[3] See also the proposals by Bundesminister für Bildung und Wissenschaft, Orientierungspunkte zur Hochschulausbildung, op. cit.

TABLE 23 Synopsis of Plans for Expansion of Higher Education by the Federal State Commission for Educational Planning and Research Promotion (BLK)

	Comprehensive Education Plan	
	I (1973)	II (1979)
a. Beginner students (in 1,000)[1]		
1980	187-206	182
1985	224-245	222-250
1990	-	187-225
b. Enrolment quota of corresponding age group (%)[1]		
1980	20-22	20.4
1985	22-24	22.8-25.6
1990	-	23.0-27.7
c. Percentage of beginner students at Fachhochschulen[2]		
1980	30	41
1985	34	ca. 40
1990	-	ca. 41
d. Total number of students (in 1,000)[3]		
1980	818-867	946
1985	965-1,047	1,104-1,168
1990	-	1,049-1,209

Source: Bund-Länder-Kommission für Bildungsplanung, Bildungsgesamtplan, Vol. I, Stuttgart: Klett, 1973, pp. 43-45; Bund-Länderkommission für Bildungsplanung und Forschungsförderung, Fortschreibung des Bildungsgesamtplans (Bildungsgesamtplan II), Entwurf Stand Juni 1979, Bonn 1979, mimeogr.

[1]Only German students

[2]Only German students; three-year courses in 1973, courses at Fachhochschulen in 1979.

[3]Including foreign students.

CHAPTER 6

REQUIREMENT FORECASTS AND RESEARCH ON HIGHER EDUCATION AND EMPLOYMENT

DEVELOPMENT OF FORECASTS

In the early sixties, the human capital theory began to gain popularity also in the Federal Republic of Germany[1]. Studies based on it hardly touched upon measures of the contribution of education to economic growth or the rate of return of investment in education[2], as became popular in some countries. Rather, they concentrated on the relationships between economic growth and demand for highly qualified manpower[3]. This holds essentially true up to the present. The predictions on demand and supply of college graduates became more sophisticated, whereas other studies on the basis of the human capital approach did not play any significant rôle.

The development of the forecasts on the demand and supply of college graduates can be divided into three stages:[4] The first global forecasts in the early sixties, the forecasts around 1970, mostly following minutely the manpower requirement

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[1] See the overviews and bibliographies in Klaus Hüfner and Jens Naumann, eds., Bildungsplanung: Ansätze, Modelle, Probleme, op. cit.; Gerhard Brinkmann et al., Bildungsökonomik und Hochschulplanung, op. cit.; see also the bibliography compiled by Bayer and Ortner, in co-operation with Lichtenberg, op. cit.

[2] For the exceptions cf. Brinkmann et al., op. cit., pp. 144-189

[3] Cf. the overviews in Arbeitsgruppen des Instituts für Arbeitsmarkt und Berufsforschung und des Max-Planck-Instituts für Bildungsforschung, op. cit.; Brinkmann et al., op. cit., pp. 48-127; "Die Zukunft der Hochschulabsolventen. Teil 1: Eine Übersicht über 23 Akademikerprognosen," Materialien aus der Arbeitsmarkt- und Berufsforschung, No. 7, 1976.

[4] Cf. the stages of the development of economics of education in the Federal Republic of Germany according to Alex, "Absolventenangebot und berufliche Flexibilität," op. cit.; the Institute for Labour Market and Occupational Research in Nuremberg used to speak of "two generations" of forecasts according to the most recent data basis of the 1961 or the 1970 census.

approach, and finally the forecasts in the mid-seventies which took up some of the objections raised against the "classical" manpower requirement approach.

The first global forecasts on the demand for university graduates were based on the assumption that the Federal Republic of Germany was lagging behind in the international expansion of secondary and higher education. In 1962, Edding published a study based on the correlation approach[1]. Assuming a parallel development of the enrolment quota at institutions of higher education and the GNP per capita, he called for a doubling of the number of students within two decades.

One year later the Permanent Conference of the Ministers of Culture presented a prediction of the demand for school teachers until 1970. An acute undersupply of teachers was expected mainly due to the increasing number of pupils. An alternative model for the case of a lower student-teacher ratio was also presented, but there was scepticism that this aim could be reached in a period of growing pupil numbers.

The late sixties until the early seventies was the second period of requirement forecasts; a series of prognoses were produced based on the manpower requirement approaches. As for data on the educational attainment of the labour force, they relied in most cases on the census data of 1961. The first publication (1967), and the best known of them, carried out by H. Riese under commission to the Science Council, came to the conclusion that the number of students was growing at a far faster rate than requirements; indeed, it was predicted that by 1981 there would be about twice as many graduates as job openings for people with their qualifications[2]. Riese assumed that the quota of university graduates within each occupational group would remain constant from 1961 until 1981. Riese also predicted changes in the distribution of the labour force according to the occupational groups mainly on the basis of trend extrapolations of the changes observed from 1951 to 1961.

Three further forecasts of the requirements of highly qualified manpower in all occupational groups were also based on the manpower requirement approach, but somewhat different in method[3]. For example, Krafft, Sanders and Straumann

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[1] Friedrich Edding "Der Ausbau der Hochschulen bis 1980," op. cit.

[2] Hajo Riese, Die Entwicklung des Bedarfs an Hochschulabsolventen in der Bundesrepublik Deutschland, op. cit.; also Hüfner, Köhler and Naumann, op. cit., pp. 67-72.

[3] Alexander Krafft, Hermann Sanders and Peter R. Straumann, Hochqualifizierte Arbeitskräfte in der Bundesrepublik Deutschland bis 1980: Sozio-ökonomische Analyse und Prognose, Bergisch-Gladbach: Bundesminister für Bildung und Wissenschaft, 1971 (Schriftenreihe Hochschule, No. 6); Laszlo Alex et al., Angebot und Bedarf an hochqualifizierten Arbeitskräften in der Bundesrepublik Deutschland bis 1980: Arbeitskräftebilanz und Intensivanalyse, München: Gersbach, 1972; Wolfgang Jeschek, Projektion der Qualifikationsstruktur des Arbeitskräftebedarfs in den Wirtschaftsbereichen der Bundesrepublik Deutschland bis 1985, Berlin: Deutsches Institut fur Wirtschaftsforschung, 1973.

TABLE 24 Forecasts of the Requirements of University-trained Manpower in 1980-81 by Field of Study (in 1,000)

Field of Study	Labour force (census data) 1961	Labour force (census data) 1970	Forecasts: Riese (1967) 1981	Forecasts: Alex (1972) 1980	Forecasts: DIW (1973) 1980	Forecasts: Kraft (1971) 1980
Agriculture, forestry	18.5	20.6	26.6	25.9	27.7	24.1
Theology	40.0	46.6	54.7	60.5	50.0	49.1
Humanities and teacher training	280.3	359.6	646.0	626.0	498.2	330.6
Economics and social sciences	58.3	85.9	95.0	107.7	94.7	171.7
Law	82.8	93.6	115.4	114.5	116.7	215.7
Engineering	99.3	104.5	171.7	194.7	163.7	254.6
Science	52.2	91.2	112.2	129.3	122.4	115.7
Medicine	86.3	114.7	104.6	154.7	143.3	160.6
Dentistry	24.5	28.0	40.8	41.7	39.5	43.1
Veterinary medicine	8.1	9.3	9.4	11.4	14.3	11.9
Pharmacy	21.6	28.5	27.3	27.9	22.9	33.8
Other fields of study	-	87.7	-	-	8.2	6.5
Total	771.9	1,070.2	1,403.8	1,494.8	1,301.8	1,420.6

Source: Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung, Entwicklung des Angebots und Bedarfs an Hochschulabsolventen, Bonn 1976 (BLK-Drucksache K/76 vom 7 Januar 1976), mimeogr.

took into account the socio-economic factors of different regions, but their results as to the total number of university-trained manpower to be required around 1980 did not vary to a large extent, as Table 24 shows. If one takes into consideration the rising number of college graduates according to the predictions of college enrolment presented by the Science Council in 1970, a high oversupply of university graduates had to be expected in most subjects. This holds true also to most requirement forecasts on single occupation groups presented at that time[1].

The forecasts of this second period provoked a large number of criticisms. Objections were raised as regards the theoretical and political implications as well as the methods applied in the requirement forecasts[2]. Among others, it was argued that the supply of qualified labour at the present ought not to be considered sufficient and that higher ratios of college-trained labour were likely to be needed within many occupational groups. Some critics pointed out the uncertainty of future development and other systematic imperfections of manpower planning. Also, that no allowance was made for horizontal substitution processes or the absorptive capacity of the labour market. Further, it was argued that a higher supply of graduates might have innovative effects on the organization of

[1] See the overview in Brinkmann et al., op. cit., pp. 81-111.

[2] See especially Wolfgang Armbruster, Arbeitskräftebedarfsprognosen als Grundlage der Bildungsplanung: Eine kritische Analyse, Berlin: Max-Planck-Institut für Bildungsforschung, 1971 (Studien und Berichte, Vol. 23).

work and productivity, and thus modify the demand. Besides, the forecasts were considered misleading, for they did not take into account the rôle of social demand in education policy, possible political programmes to utilize highly qualified manpower and the benefits of education for culture and society in general. In addition many arguments were raised which did not challenge the underlying basis of the human capital theory but rather the specific problems of the manpower requirement approach[1].

Given the criticisms of the scientific community and the political inclination around 1970 to support a remarkable expansion in higher education, one could have expected in the early seventies that manpower requirement forecasts would play subsequently only a marginal rôle among studies on higher education and the occupation system. Two circumstances, however, supported the new wave of requirement forecasts.

To begin with, the Federal Constitutional Court determined in 1972 that although qualified secondary school leavers were basically entitled to enroll, restricted admission might be legitimate if - among others - the supply of graduates would surpass the "perceptible" demand (see chapter 5). Therefore, at the sight of the quickly increasing number of applicants at that time, the state agencies felt compelled to commission an unprecedented number of requirement forecasts in order to "perceive" bottlenecks and thus legitimize restricted admission, at least in the more costly fields of studies. The second circumstance was the slowdown of economic growth since 1973, which caused growing concern about future prospects for college graduates as well as the financing of higher education.

Dozens of requirement forecasts were published in the seventies which took into account somehow the criticisms of the preceding forecasts that had followed the manpower requirement approach. There developed such a variety of approaches, that it is difficult to make any general statement about them[2]. Among others, there are studies which only modify the classical approach marginally, [3] just summarize employers' opinions, [4] rely on international comparisons in the

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[1] Wolfgang Jeschek, "Möglichkeiten und Grenzen der Verbesserung bisheriger Prognoseansätze," in Arbeitsgruppen des Instituts für Arbeitsmarkt- und Berufsforschung und des Max-Planck-Instituts für Bildungsforschung, op. cit., pp. 117-134; see also Armin Hegelheimer, "Qualifikationsbedarf und Bildungsgesamtsystem," in Lohmar and Ortner, op. cit., pp. 325-347.

[2] See the overview of approaches in Klaus Parmentier and Manfred Tessaring, "Bildungswesen und Arbeitsmarkt für Hochqualifizierte: Eine Übersicht," in Arbeitsgruppen des Instituts für Arbeitsmarkt und Berufsforschung und des Instituts für Bildungsforschung, op. cit., pp. 285-292; "Die Zukunft der Hochschulabsolventen. Teil 1," op. cit.

[3] Armin Hegelheimer and Gernot Weisshuhn, Ausbildungsqualifikation und Arbeitsmarkt: Vorausschau auf das langfristige Arbeitskräfte und Bildungspotential in West-Berlin, Berlin: Deutsches Institut für Wirtschaftsforschung, 1973.

[4] Bundesvereinigung der Deutschen Arbeitgeberverbände, Bedarf der privaten Wirtschaft an Akademikern: Eine Tendenzanalyse, op. cit.

supply of professional services, [1] estimate potentials of upgrading, [2] or present possible far-reaching qualitative changes of the economy and their effects on the labour market [3].

It may be appropriate, though, to state that those requirement forecasts which follow some of the assumptions and methods of the manpower requirement approach, but at the same time try to develop more sophisticated concepts, tend to show the following modifications:

- to proceed from various political objectives as regards to education, labour market and economy, and to present corresponding models of the consensus expected in terms of demand and supply of graduates,
- to incorporate surveys on employers' views as regards to the present utilization or future demand for highly qualified manpower,
- to estimate the possible range of requirements due to potentials of flexibility on the part of the employers' and of the labour force.

Some of these forecasts adapted rationales of research approaches which do not share the basic assumptions of the human capital theory. As these modifications require a more detailed data base, most of the forecasts of the third period concentrated on segments of fields of studies or occupations. It should be mentioned that in some cases forecasts were made for requirements as regards to all levels of education [4], or for some certain regions [5].

The majority of the studies produced quite sophisticated models. This might be, to some extent, attributed to pressures exerted by the Institute of Labour Market and Occupational Research of the Federal Employment Agency to guarantee certain

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[1] McKinsey and Co., Inc., Ausbildungsbedarf für Mediziner bis zum Jahr 2000: Zusammenfassung der Untersuchungsergebnisse, Bonn: Bundesminister für Bildung und Wissenschaft, 1974.

[2] Peter Heindlmeyer et al., Berufsausbildung und Hochschulbereich: Eine quantitative Analyse für die Bundesrepublik Deutschland, Pullach b. München: Verlag Dokumentation, 1973.

[3] Wolfgang Bierter et al., Potentielle strukturelle Ungleichgewichte zwischen Bildungs- und Beschäftigungssystem in der Bundesrepublik Deutschland bis zum Jahre 1990, Basel: Prognos, 1976, mimeogr.

[4] See Hegelheimer and Weisshuhn, op. cit.; Albert Blüm and Udo Frenzel, Quantitative und qualitative Vorausschau auf den Arbeitsmarkt der Bundesrepublik Deutschland - Stufe 3, 2 Vols., Nurnberg: Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit, 1975 (Beiträge zur Arbeitsmarkt- und Berufsforschung, Vols. 8.1 and 8.1); Gernot Weisshuhn, Beschäftigungschancen und Qualifikation, Frankfurt and New York: Campus: 1978.

[5] Kultusministerium Baden-Württemberg, Der Arbeitsmarkt für Akademiker in Baden-Württemberg bis 1990: Modellberechnungen zur Entwicklung von Nachfrage und Angebot, Villingen-Schwenningen: Neckar-Verlag, 1978 (Bildung in neuer Sicht, Series A, No. 35).

standards of methods applied, consistency, appropriate discussion of the results etc. [1].

Some of the results of the forecasts published in the third period will be presented in the following section. Many of the forecasts came to the conclusion that, according to more cautious expectations on future development, a remarkable oversupply of graduates could be predicted, but if substitution processes play an important rôle in the future and active policies as regards to economic development and labour market were to be chosen, there would not be any oversupply. Although the debate continued about the utility of such forecasts [2], in the seventies the number of politicians and researchers seems to have grown who supported the view that such forecasts were one of several valuable sources of information, provided their predictive validity was not overestimated.

However, it is doubtful whether these studies have been of any substantial help in government planning on higher education or even whether they have been able to make such planning more sophisticated [3]. For the more complex the models became, the harder it was for them to produce results that could serve as legitimization for specific political decisions. On the one hand, it has become exceedingly difficult to judge the extent to which the resulting data are determined by the complex assumptions on which the model is based, and on the other hand, reference to substitution processes and alternative policies has the effect of "passing the buck" back to the planners. When it is estimated, for example, that the maximal requirements for law graduates is 3.7 times as high as the minimal requirements [4], it can only serve as a demonstration of the fact that a sophisticated forecast can hardly be a forecast at all.

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[1] The Institute had been asked by government agencies to advise on forecasts. In addition, it published many articles on criteria for evaluations and also critical evaluations of forecasts. See for example Dieter Mertens, "Zur Diskussion über das Verhältnis zwischen Bildungs- und Beschäftigungssystem: Entwurf für einen Satz Spielregeln," op. cit.; "Die Zukunft der Hochschulabsolventen. Teil 6: Kritische Beurteilung der Akademikerprognosen der 'zweiten Generation'," Materialien aus der Arbeitsmarkt- und Berufsforschung, No. 6, 1977.

[2] Cf. for instance the different views in Hegelheimer, "Qualifikationsbedarf und Bildungsgesamtsystem," op. cit.; Hajo Riese, "Bildungsexpansion und Hochschulstruktur," in Lohmar and Ortner, eds., op. cit., pp. 284-305; Teichler, Hartung and Nuthmann, Hochschulexpansion und Bedarf der Gesellschaft, op. cit.; Arbeitsgruppen des Instituts für Arbeitsmarkt- und Berufsforschung und des Max-Planck-Instituts für Bildungsforschung, eds., op. cit.; Arno Combe and Hans-Joachim Petzold, Bildungsökonomie: Eine Einführung, Köln: Kiepenheuer & Witsch, 1977.

[3] See Teichler, Hartung and Nuthmann; Higher Education and the Needs of Society, op. cit., pp. 21-57

[4] See Manfred Kaiser, "Zur Flexibilität von Hochschulausbildungen: Ein Überblick über den Stand der empirischen Substitutionsforschung," Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 8, No. 3, 1975, pp. 203-221, esp. pp. 216-7.

PREDICTIONS ON DEMAND AND SUPPLY IN THE EIGHTIES

As has been mentioned before, the variety of approaches lead naturally to quite different results on labour market prospects of college graduates. It is possible, however, to give an overview of those results which played a major rôle in the mid-seventies in the debates on the "opening up" of higher education, for most political statements referred to a set of forecasts which were summarized by the Federal-State Commission for Educational Planning and Research Promotion in 1976[1].

According to those studies, the total demand for highly qualified manpower trained in engineering and natural sciences was estimated for 1990 to be 615,500 to 819,800. As a supply of 883,600 to 971,200 persons was expected, the study predicted an increase in the oversupply from about two per cent in 1975 to almost 60 per cent in 1990[2]. A study on graduates of economics, jurisprudence and social sciences predicted a total demand ranging between 389,200 to 472,300 persons and a supply of 415,100 to 585,700 persons. It expected an oversupply beginning from 1984 and reaching about 16 per cent in 1990; but, the study also presented alternative models of development, according to which an undersupply of 10 to 15 per cent seemed to be possible in 1990[3]. A study on medicine however did not predict any oversupply in the year 2000[4]. Finally, in the case of teachers, the BLK predicted an undersupply of 24,000 to 37,000 teachers for vocational schools and an oversupply of 86,000 to 227,000 teachers for other schools.

The Conference of Ministers of Finance, taking up some of these results, argued that only about one-third of the graduates in the eighties would be employed in the public sector. Another summary of the forecasts came to the conclusion that the additional demand for college-trained manpower in the public sector (including health service sector), where about 800,000 graduates were employed in the mid-seventies, would be 175,000 to 331,000 persons up to 1985. As an additional supply of 526,000 to 602,000 persons was predicted, the study came to the conclusion that about 50 to 60 per cent of the additional college graduates, i.e., those exceeding the replenishment demand, would have to find jobs in the private sector. According to this model, the increase in the absolute number of college-trained manpower in the private sector over a period of ten years must be four times as high as in the sixties[5].

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[1] Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung, Entwicklung des Angebots und Bedarfs an Hochschulabsolventen, Bonn 1976 (BLK-Drucksache K/76 vom 7. Januar 1976), mimeogr.

[2] W. Hasselmann and I. Schubert, Bedarf und Angebot an Ingenieuren und Naturwissenschaftlern in der Bundesrepublik Deutschland bis 1990, Bonn: Bundesminister für Bildung und Wissenschaft, 1975.

[3] Hans Ludwig Freytag et al., Beschäftigungslage und Berufschancen für Wirtschaftswissenschaftler, Juristen, Sozialwissenschaftler 1961 bis 1990, Bonn: Bundesminister für Bildung und Wissenschaft, 1975.

[4] McKinsey and Co., Inc., op. cit.

[5] Laszlo Alex, Hochschulabsolventen im Beruf, Bonn 1977, mimeogr.

TABLE 25 Supply and Demand for Manpower in Academic Professions in 1990 according to Forecasts of the Batelle Institute and Computations of the Institute for Labour Market and Occupational Research

Occupational group	Percentage of college-trained persons in occupational groups 1970 (I)	1990 (II)	Absolute number of college-trained manpower in 1990 Model I (constant quota)	Model II (increased quota)
Engineers and architects	16.4	33.7	96	198
Scientists	85.2	100.0	54	63
Administrative and commercial occupations	12.2	15.5	88	112
Legal professions	77.7	81.9	80	84
Cultural occupations	15.3	19.3	41	49
Health professions	96.6	100.0	269	278
Social work occupations	3.2	3.6	7	8
Teachers	90.7	97.4	715	768
Other occupations for college-trained labour	100.0	100.0	55	55
Clergy	69.9	100.0	27	39

Source: Based on "Die Zukunft der Hochschulabsolventen, Teil 2: Ergebnisse - Gesamtprognosen," Materialien aus der Arbeitsmarkt- und Berufsforschung, No. 2, 1977, p. 2.

The Federal Associatien of German Employers presented a forecast based on a survey of employers' opinions. According to this, only 14 per cent of the college-trained manpower in 1985 would be employed in the private sector[1].

On the other hand, a forecast by the Batelle Institute came to the conclusion that a balance between supply and demand for college-trained manpower might be possible in 1990[2]. This would be the case, they argued, if the quota of university graduates in ten major occupational groups increased according to the figures presented in Table 25. According to their model, the quota of college-trained persons would only have to grow moderately in most occupational groups, but very rapidly among engineers and architects.

It should be borne in mind, however, that these predictions on supply and demand were based on assumptions of a more rapid increase of enrolment at institutions of higher education in the seventies than actually happened[3]. If one followed the predictions for the demand but corrected the estimates of supply in accordance with more recent trends, the oversupply expected in most studies would be much smaller.

[1] Bundesvereinigung der Deutschen Arbeitgeberverbände, Bedarf der privaten Wirtschaft an Akademikern, op. cit.

[2] Blüm and Frenzel, op. cit.

[3] See Dieter Mertens, Akademikerperspektiven - Schon wieder eine Tendenzwende? Prisma - Die Zeitschrift der Gesamfhochschule Kassel, No. 21, 1979, pp. 121-5.

In addition, the results of some further forecasts ought to be mentioned here:

(a) Some forecasts, which continued to follow the traditional manpower requirement approach closely, tried to establish the supply and demand for manpower of all educational levels. A forecast for the State of Berlin (West) predicted an oversupply of college graduates and a serious shortage of skilled labour[1]. Another forecast on the development in the Federal Republic of Germany came to the conclusion that the share of unskilled and semi-skilled labour would be too small on the supply side, as can be seen from Table 26.

(b) A second forecast published by Riese and associates in 1973[2] estimated the demand for college graduates in 1980 to be about 86 per cent higher than the figures given in Riese's previous requirement forecasts on the demand for university graduates in the early eighties[3]. First of all they assumed that an integrated system of higher education would be in existence around 1980 and included the demand for short-cycle graduates. In addition, they assumed that the demand for college graduates would especially grow in those occupational groups in which college graduates counted 20 to 25 per cent in the sixties, especially in semi-professions. According to Riese's view, this is not a "demand" caused by genuine processes in the occupation system, but would be provoked partly by the growing supply; he called for political measures to support the absorption and utilization of the growing number of graduates.

(c) The consequences of alternative models of development in forecasts might be seen in the study on supply and demand for the State of Baden-Württemberg[4]. The authors presented three models, each for the demand and for the supply. The cumulated absolute figures of demand for the years 1976-1990 are show in Table 27. According to these models, the cumulated supply equals between 108 per cent and 363 per cent of the demand, or in absolute figures, the supply exceeds the demand by at least 15,000 persons and at most 208,000 persons! The authors of the report try to overcome the dilemma of such a wide range of alternatives by means of considering for likelihood only the "trend model" and the "socio-political model" on the demand side, and the "higher education policy model" on the supply side. In this way they reduce the range of expected oversupply to 20,000 or 62,000 persons. According to all three models, the oversupply as regards new graduates and job openings will reach its peak in the late eighties.

(d) A study by Prognos Ltd. went beyond the range of alternative models presented in other forecasts on the supply and demand for highly qualified manpower, and called for an active economic and employment strategy[5]. Sharing the view

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[1] Hegelheimer and Weisshuhn op. cit.

[2] Heindlmeyer et al., op. cit.

[3] See the summary and critical review in Brinkmann et al., op. cit., pp. 75-80.

[4] Kultusministerium Baden-Württemberg, op. cit.

[5] Bierter et al., op. cit.

TABLE 26 Demand and Supply of Manpower by Level of Education in 1990, according to a Forecast by Weisshuhn (percentage)

Level of education	1970 Educational attainment of labour force	1990 Demand Model I (2.5% growth rate of GNP)	1990 Demand Model II (3.9%)	1990 Demand Model II margins of substitution	1990 Supply (total labour force)
Unskilled and semi-skilled labour	33.0	29.8	29.4	24.0-38.9	17.0
Skilled labour: apprenticeship training	42.8	42.6	41.8	34.1-53.0	44.5
Skilled labour: higher vocational training[1]	13.8	14.9	15.0	12.1-19.0	22.9
Graduates from short-cycle institutions[2]	1.6	1.9	2.0	1.6- 2.5	3.1
University graduates	4.3	6.2	6.4	5.2- 8.1	8.1
Open/others	4.5	4.6	5.4	-	4.4
Total[3]	100.0	100.0	100.0	100.0	100.0

Source: Based on Gernot Weisshuhn, Beschäftigungschancen und Qualifikation, Frankfurt and New York: Campus, 1978, pp. 130-135.

[1] Berufsfachschulen, Fachschulen, Technikerschulen

[2] Only graduates of engineering were included in 1970 and in demand data

[3] Only Germans.

TABLE 27 Cumulated Demand and Supply of College Graduates in Baden-Württemberg 1976-90 by Alternative Models of Development

Model	Assumptions	No. of persons
A. Demand		
I. "status quo model"	constant quota of college-trained manpower among total labour force	79,000
II. "trend model"	extrapolation of the growth of the quota of college-trained labour	143,000
III. "socio-political model"	increased demand for teachers and in the public sector, extrapolation of recent trends in the private sector	185,000
B. Supply		
I "status quo model"	constant capacity of institutions of higher education	200,000
II. "higher education policy model"	slightly increased capacity according to the plans of the Government of Baden-Württemberg	205,000
III. "social demand model"	trend extrapolation	287,000
C. Oversupply (supply - demand)		
Minimum	B. I - A. III	15,000
Alternative I	B. II - A. III	20,000
Alternative II	B. II - A. II	62,000
Maximum	B. III - A. I	208,000

Source: Based on Kultusministerium Baden-Württemberg, Der Arbeitsmarkt für Akademiker in Baden-Württemberg bis 1990, Villingen-Schwenningen: Neckar-Verlag, 1978, pp. 2-16.

widely held among economists that the prevailing trends in economic growth, rationalization of work and demography will lead to increasing unemployment, the study suggested four labour-intensive programmes:

- promotion of technology in order to cope with worldwide bottlenecks (increase of highly technological products)
- establishment of city and rural development projects in order to overcome structural deficiencies caused in the sixties and the seventies
- establishment of projects for disadvantaged groups
- increase of development aid

The programme proposed would require 900,000 jobs and would create indirectly a further 300,000 positions, thus assuring full employment in 1990.

According to the Prognos study, an undersupply of 250,000 college graduates would have to be expected in 1990 if such an active employment policy were to be realized. But even if such a programme should not be carried out, a small undersupply was considered more likely than an oversupply of graduates. In that case, they considered that there would be an undersupply of graduates in engineering, economics and medicine, but an oversupply in teacher training, social sciences and social work.

RESEARCH APPROACHES ON HIGHER EDUCATION AND EMPLOYMENT

As mentioned above, the manpower requirement approach had provoked much criticism in the Federal Republic of Germany. Subsequently, some of these critical arguments had influenced the hypotheses of a number of research projects on higher education and employment in the country. First of all, criticism was made as to the assumption of the manpower approach in which a certain stage of economic development was supposed to correspond closely to a certain pattern of manpower. Many studies now examined alternative relationships between the education and the occupation systems and analysed the variety of factors causing a change in occupational requirements. Among others, studies on higher education and the employment system of foreign countries played some rôle in these considerations[1].

Second, it was now widely assumed that better knowledge of the qualitative inter-relationship between higher education and work would help explain the necessary and appropriate relationship between higher education and employment, and thus eventually reveal possible alternatives. Research on the labour market which tried to overcome this lack of information was carried out now on the nature of work, requirements, competences, curricula and learning processes.

Three types of surveys could be found quite frequently, sometimes combined in one study:[2]

(a) Surveys on the relationship between educational attainment and occupation (of the total labour force or its segments): Such studies would be made in order to find out, for example, what career perspectives the graduates of certain fields of study have, or how absorptive and flexible the employment system is.

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[1] See the overview in Teichler and Voss, Materialien zur Arbeitsmarktlage von Hochschulabsolventen, op. cit., pp. 44-57.

[2] See the bibliographical notes presented in Hartung et al., op. cit.; cf. also Teichler, ed., Hochschule und Beruf: Problemlage und Aufgaben der Forschung, op. cit.

(b) Surveys on educational and occupational biographies: They render more importance to the analysis of, for example, occupational choice, the evaluation of one's studies and their impact on the career, problems of adjustment in the working life, the impact of education on the career, career patterns, etc.

(c) Surveys on occupational requirements and outcomes of higher education: Such surveys analyse employers' or graduates' understanding of job tasks and the requirements involved and relate their findings to the curricula in higher education. Or they ask graduates to assess the utility of their studies for their work etc.

There are quite a variety of underlying concepts in research on higher education and employment. Six main directions have been identified in respect of these concepts and approaches[1], which are summarized below:

The first of such approaches which enjoyed wide attention was the human capital theory. It dominated economics of education and research on higher education and employment in general until 1970. The basic set of assumptions on the rôle of education in economic growth did not only shape the manpower requirement forecasts, but also research projects on the job tasks of graduates. In many cases deficiencies of graduates to cope with certain tasks were studied in order to use them as the basis for recommendation of further necessary additions to the curricula in higher education[2]. Thus, not only forecasts, but also surveys, were based on analysis of training needs and took the status quo of the employment system as the appropriate basis to define requirements.

Criticism of the theoretical, methodological and political implications of the manpower requirement forecasts led to the development of the so-called absorption approach[3]. It focusses on the question: under what conditions can the occupation system absorb growing numbers of graduates, and how would this affect recruitment, occupational structure, the development of occupational rôles, etc.? A survey on the employment of graduates in political science conducted by a research group at the Max-Planck-Institute for Educational Research is generally cited as

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[1] Sabine Kudera, Theoretische Konzeptionen zum Verhältnis von Bildungs- und Beschäftigungssystem, Akademie für Raumforschung und Landesplanung, Hannover: 1978 (Forschungs- und Sitrungsberichte, No. 127).

[2] See especially Gerhard Brinkmann, Berufsanforderungen und Berufsausbildung, Tübingen: Mohr, 1978; Gerhard Brinkmann and Wolfgang Rippe Qualität und Quantität des Bedarfs an Führungskräften der Wirtschaft Nordrhein-Westfalens bis zum Jahre 1990, Opladen: Westdeutscher Verlag, 1972.

[3] Wolfgang Armbruster et al., Expansion und Innovation: Bedingungen und Konsequenzen der Aufnahme und Verwendung expandierender Bildungsangebote, Berlin: Max-Planck-Institut für Bildungsforschung, 1971; Wolfgang Armbruster et al., "Expanding Use of Highly Qualified Manpower: Conditions and Consequences," Conférence intergouvernementale sur l'utilisation du personnel hautement qualifié (Venise, 25-27 Octobre 1971), Paris: OECD, 1971; p. 1-39.

the strategically most valuable study on this approach[1]. It pointed out that there may exist an unanticipated requirement which the manpower requirement approach would systematically overlook. The absorption approach indicated a relative autonomy of the education system and a high degree of flexibility on the part of the occupation system in relating the fields of study and occupations.

In this study on the employment of graduates in political science, and in subsequent studies of graduates in business administration and engineering[2], the persons surveyed were asked, among other things, to what extent they were able to apply what they had learned at the university, whether they considered their training an important prerequisite for their current occupation, whether and how they shaped their occupational rôles, what training their predecessor had or, in the event they themselves had changed employment, what type of training their successor had and what the ideal training for such a successor would be. As Table 28 shows, many political science graduates had substituted for graduates in other fields as well as for non-graduates, and the prospects for such substitution processes could be noted[3].

The basic question put by the absorption approach as to the absorptive capacity of the employment system and the impact of unexpected supply on the job rôles - and thereby on the demand in the long run - caused a breakthrough on the research scene. Although criticisms were frequently expressed that the studies mentioned above had supported too optimistic views on the career prospects of the rising number of graduates, the basic elements of this approach were subsequently incorporated into many research concepts[4].

[1] Dirk Hartung, Reinhard Nuthmann and Wolf Dietrich Winterhager, Politologen im Beruf: Zur Aufnahme und Durchsetzung neuer Qualifikationen im Beschäftigungssystem, Stuttgart: Klett, 1970. On the significance of this study for the subsequent debates cf. Hajo Riese, "Bildungsexpansion und Hochschulstruktur", op. cit., International Labour Office, Some Growing Employment Problems in Europe: Manpower Aspects of Recent Economic Developments in Europe, Geneva, 1973.

[2] Peter Matthias, Determinanten des beruflichen Einsatzes hochqualifizierter Arbeitskräfte: Zur Berufssituation von Diplom-Kaufleuten, Berlin: Max-Planck-Institut für Bildungsforschung, 1973 (Studien und Berichte, Vol. 29); Claus Oppelt, op. cit.

[3] It should be noted that the authors of the study rated only 2 per cent as "altogether unsuccessful" and only 3 per cent as "altogether inconsonant with previous training" (Hartung, Nuthmann and Winterhager, op. cit., p. 123-4).

[4] See, in addition to the critical comments as well as appraisals in the publications by Busch et al., Brinkmann et al., Strangmeier, Weisshuhn, Klaus Hurrelmann, Erziehungssystem und Gesellschaft, Reinbek b. Hamburg: Rowohlt, 1975; H. Armin in Lohmar and Ortner, op. cit., pp. 72-91, Hegelheimer, "Bildungsbedarf und berufliche Qualifikation," Anne Sachs, Produktion, Qualifikation und Berufsbildungsforschung, Frankfurt/Maag und Herchen, 1978; Barbara Bergmann-Krauss, Qualifikationsforschung und Hochschulreform, Berlin: Bundesinstitut für berufliche Bildung, 1977, mimeogr.

TABLE 28 Predecessor and Suitable Successor for the Position Presently Held by a Political Scientist (Percentage)

	Suitable successor						
redecessor	Political science graduates	Other social sc. graduate	Graduates in University other degree not subjects necessar		Other responses, no response	Total (n=402)	Percentage predecessor
litical science graduate	85	12	0	2	0	100	12.2
er social science graduate	47	15	30	2	4	100	11.4
w graduate	44	7	40	0	7	100	6.7
aduates in other subjects	50	11	30	0	9	100	11.4
n-graduate	20	17	15	38	10	100	14.9
predecessor	48	17	20	9	6	100	31.6
response	28	11	17	11	34	100	11.7
tal	46	14	20	20	9	100	100.0

urce: D. Hartung, R. Nuthmann, and W. D. Winterhager, Politologen im Beruf, Stuttgart: Klett, 1970, p. 117

TABLE 29 Latent Substitution and Realized Substitution of Highly Qualified Manpower 1970 (Percentage)

University and college degree in:	Latent Substitution				Realized Substitution			
	Passive: could be substituted by persons with:		Active: could substitute for persons with:		Passive: has been substituted by persons with:		Active: has substituted for persons with:	
	Other subjects	No college degree	Other subjects	No college degree	Other subjects	No college degree	Other subjects	No college degree
Economics and social sciences	12	41	60	30	-	-	-	-
Law	42	19	53	-	40	30	17	33
Mathematics	58	23	65	13	29	20	58	4
Physics	58	19	67	12	44	7	33	15
Chemistry	43	10	34	16	6	2	5	2
Biology	38	-	45	6	61	-	46	-
Architecture	15	36	11	42	7	17	9	22
Appl. engineering, mining and metallurgy	38	22	50	23	12	8	24	11
Mechanical engineering	46	31	33	41	16	21	17	20
Electrical engineering	47	32	33	40	25	21	28	17

Source: Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit, Berufliche Flexibilität und Arbeitsmarkt, Nürnberg 1977, pp. 14 and 20 (Quintessenzen aus der Arbeitsmarkt- und Berufsforschung, No. 7).

The flexibility approach, which concentrates mainly on substitution processes and determinants of occupational flexibility, has been adapted as the central research programme of the Institute for Labour Market and Occupational Research of the Federal Employment Agency in Nürnberg[1]. In the first place, different methodological steps were chosen to measure the labour market's elasticity in adjusting education and occupation. The latent substitution cited in Table 29 was measured by questioning employers about the extent to which jobs in their area of responsibility could be carried out by persons having a different training and educational level to those presently employed. The result was that, for example, 12 per cent of the positions currently held by graduates in economics and social science could equally well be held by graduates in other fields, and 41 per cent of these jobs could even be filled by persons with no college degrees. In other words, 60 per cent of the graduates in economics and social science would be able to substitute for graduates in other fields, and 30 per cent could step in for people who have no college degree whatsoever. The substitution as it actually takes place (realized substitution) was established by inquiring into the predecessor's and successor's training, similarly to the way this had been done in the above-mentioned study on political scientists, except that employers were also questioned in this case.

Requirement forecasts also make use of this type of calculation, whereby data on substitution processes are used as a basis for adding estimates of minimal and maximal demand to the conventional prognosis. In addition, proponents of this flexibility approach suggest that training be changed in order to make graduates more flexible in regard to the employment they can assume. Demand is made for quantitative expansion of these subjects which have been calculated to have a high active substitution potential, as well as for preference to be given to those courses of study in subsidizing retraining. Finally, it is generally suggested that certain "key qualifications" be placed at the core of pre-career education[2].

As far as the quantitative development of education is concerned, representatives of the Institute in Nürnberg argue that expansion is useful in order to increase the individual potentials to cope with changes in employment and the complexity of working and living conditions. Further, they considered an expansion neces-

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[1] Dieter Mertens, "Der unscharfe Arbeitsmarkt: Eine Zwischenbilanz der Flexibilitätsforschung," Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 6 No. 3, 1973, pp. 314-325; Manfred Kaiser, "Zur Flexibilität von Hochschulausbildungen" op. cit., Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit, Berufliche Flexibilität und Arbeitsmarkt, Nürnberg 1977 (Quintessenzen aus der Arbeitsmarkt- und Berufsforschung, No. 7).

[2] Dieter Mertens, "Schlüsselqualifikationen: Thesen zur Schulung für eine moderne Gesellschaft," Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 7 No. 1, 1974, pp36-43. For a corresponding change of occupational rôles, cf. Ulrich Beck, Karl Martin Bolte, and Michael Brater, "Bildungsreform und Berufsreform: Zur Problematik der berufsorientierten Gliederung des Bildungssystems," Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 9, No. 4, 1976, pp. 496-508

sary in order to meet the requirements in the long run. D. Mertens[1], takes the view that uncertainty about the long-term requirements might well lead to the adoption of a risk strategy of "overqualification" rather than "underqualification" and that it is appropriate to expect a considerable flexibility on the part of the occupation system to adjust to the manpower supply[2].

This approach and its findings caused controversy, especially in regard to methods of measuring substitution potentials, the individual labour market prospects of those trained to be flexible and made ready to be mobile, the vague ties of the assumptions on individual dispositions for mobility and substitution on the one hand and competences on the other, and the effect that an individual experiences as to "occupational identity"[3]. But it is accepted on the whole that estimates on qualification requirements have to take into account possible substitution processes. In addition, many share the same view on the future need for flexibility of education.

A fourth direction in research has to do with strategies within enterprises to utilize qualifications. The Institute for Social Research in Munich, in particular, has carried out a great number of studies on the qualifications required in certain specific occupations, on personnel policy, etc.[4]. Among other things, they have established that in the field of mechanical engineering the number of highly qualified engineers has on the whole increased enormously without any corresponding economic growth having occurred, and that the proportion of engineers employed, relative to other types of employees, tends to vary considerably from enterprise to enterprise. Critical mention is made of one unwanted consequence of this development: that opportunities for advancement for graduates with a lower level of education have lessened as a result. In addition, a study comparing the qualification structure in France and the Federal Republic of Germany came to the conclusion that a system which places stronger emphasis on specific professional qualifications is likely to develop more complex occupational rôles and give graduates with lower levels of education a greater opportunity to define their own rôles[5].

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[1] Dieter Mertens, "Unterqualifikation oder überqualifikation?" Gewerkschaftliche Monatshefte, Vol. 27, No. 8, 1976, pp. 488-497.

[2] Dieter Mertens, "Zur Diskussion über das Verhältnis zwischen Bildungs- und Beschäftigungssystem: Entwurf für einen Satz Spielregeln," op. cit.

[3] See the collection of papers in Dieter Mertens and Manfred Kaiser, eds., op. cit. cf. also the references in Ulrich Teichler, "Flexibilität und Befähigung als Ausbildungsziele," in H. Dedering, ed., Lernen für die Arbeitswelt, Reinbek b. Hamburg: Rowohlt, 1979, pp. 138-55.

[4] Guido Kammerer, Burkhart Lutz, and Christoph Nuber, Ingenieure im Produktionsprozess, Frankfurt: Athenaeum, 1973; Burkhart Lutz and Guido Kammerer, Das Ende des graduierten Ingenieurs? Frankfurt and Köln: Europäische Verlagsanstalt, 1975; I. Asendorf-Krings et al., Zur Bestimmung von Qualifikation und Qualifizierungsprozessen: Das Problem des Verhältnisses von Bildung und Produktion, München: Sonderforschungsbereich 101 der Universität München, 1974.

[5] Lutz, "Bildungssystem und Beschäftigungsstruktur in Deutschland und Frankreich," op. cit.

Most of the studies based on this approach, however, did not touch upon college-trained labour.

A fifth direction for research is concerned with investigation into the interrelation between technological development, the rationale of the socio-economic system and the organization of work. In contrast to those studies which only stress technological developments and the organization of work, this approach proceeds from the assumption that employers' interest in maximizing their profit has a great deal to do with the way rationalization is carried out in a given enterprise. Whereas technological development as such tends to have the effect of raising cognitive requirements, the profit motive tends to lead to the rationalization decision to get by with personnel whose educational level is lower. Various studies carried out at the Social Research Institute in Göttingen on developments in the organization of work and in the structure of occupational rôles[1] support the conclusion that these trends are bringing about a polarization in the structure of qualifications, whereby more highly qualified manpower, as well as semi-skilled and unskilled labour, will be required, while the demand for intermediate qualifications is tending to decline. Researchers of this Institute also argue that employers' complaints about a shortage of skilled manual workers did not necessarily reflect an undersupply of skills, but the interest in retaining the socializing effects of the system of apprenticeship training[2].

Many Marxist scholars of this field in the Federal Republic of Germany concentrate their studies on the socio-political determinants of technological developments and their effects on the skills required, but their views show variations as to the rôle of genuine technological factors as well as the trend of manpower requirements[3]

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[1] Horst Kern and Michael Schumann, Industriearbeit und Arbeiterbewusstsein Eine empirische Untersuchung über den Einflubss der aktuellen technischen Entwicklung auf die industrielle Arbeit und das Arbeiterbewusstsein, 2 Vols., Frankfurt: Europäische Verlagsanstalt, 1970 (RKW-Schriftenreihe, Vol. 8); Martin Baethge et al., Produktion und Qualifikation, Hannover: Schroedel, 1975; Friedrich Gerstenberger, "Produktion und Qualifikation," Leviathan, Vol. 3, No. 2, 1975, pp. 251-279.

[2] Martin Baethge, "Die Integration von Berufsbildung und Allgemeinbildung als Forschungskonzept für die Berufsbildungsforschung," in H. Roth and D. Friedrich, eds., Bildungsforschung: Probleme - Perspektiven - Prioritäten, Vol. 1, Stuttgart: Klett, 1975, pp. 253-302.

[3] See, for example, Elmar Altvater and Freerk Huisken, eds., Materialien zur politischen Ökonomie des Ausbildungssektors, Erlangen: Politladen, 1971; Freerk Huisken, Zur Kritik bürgerlicher Didaktik und Bildungsökonomie München: List, 1972; Karl Heinz Roth and Ekard Kranzow, Unwissen als Ohnmacht: Zum Wechselverhältnis von Kapital und Wissenschaft, 2nd edition, Berlin: Voltaire, 1971; Michael Masuch, Politische Ökonomie der Ausbildung, Reinbek b. Hamburg: Rowohlt, 1972; Autorenkollektiv, Zur Kritik der Bildungsökonomie, Berlin: Verlag für das Studium der Arbeiterbewegung, 1974; Gero Lenhardt "Bildungspolitik und privatwirtschaftliche Rationalität: Marxistische Perspektiven zur Bildungsreform," in J. Derbolav, ed., Grundlagen und Probleme der Bildungspolitik, München: Piper, 1977; Gero Lenhardt, "On the Relationship between the

In addition studies have been carried out on the historical features of occupations and their impact on the division of labour and, subsequently, on the perception of the manpower requirements[1].

The research of the Institute in Göttingen which refers briefly to higher education, has been criticized, among others, as exaggerating the selected findings on the qualification structure and generalizing them to an overall trend of "polarization"[2]. But the research has certainly, in our opinion, contributed to the affirmation that the impact of the economy and technology as such on the development of education and employment is less than was previously believed.

The sixth and final approach listed in the survey previously cited comprises studies that stress the selective or status distributive function of education. The author mentions in particular researchers at the Max-Planck-Institute for Educational Research[3], although a number of other scholars are also interested in this approach[4]. Analyses of the political decision-making process, requirement notions and recruitment strategies, among others, lead one to support the conclusion that during the course of the expansion of higher education the tendency in recruiting graduates and in revamping the structure and curricula of higher education has differed from fixed notions about which qualifications are needed. Instead, more and more effort has gone into selection and into maintenance of social hierarchy and its legitimization. Criticism of this approach rests frequently on the arguments that it underestimates the economic and technological forces working on the organization of work and that it does not prove sufficiently the stability of the structure of social inequality. The basic concepts have been taken up occasionally in recent research and have been frequently adopted in political

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Education System and Capitilist Work Organization," Kapitalistate, No. 3, Spring 1975, pp. 128-146; Combe and Petzold, op. cit.; Egon Becker and Bernd Wagner: Ökonomie der Bildung, Frankfurt and New York: Campus, 1977; Hans-Christian Harten, "Sozialisation und Qualifikation," in J. Raschert, ed., Jahrbuch für Erziehungswissenschaft, Vol. 3, Stuttgart: Klett, 1979, pp. 66-128.

[1] Ulrich Beck and Michael Brater, Die soziale Konstitution der Berufe, Frankfurt: Aspekte, 1977; Ulrich Beck and Michael Brater, Berufliche Arbeitsteilung und soziale Ungleichheit, Frankfurt and New York; Campus 1978;

[2] See Wulf Hopf. "Senkung und Polarisierung von Qualifikationsanforderungen als Bedingungen des Bildungssystems", Zeitschrift für Pädagogik, Vol. 24, No. 1, 1978, pp. 51-67.

[3] Hartung and Nuthmann, op. cit.; Ulrich Teichler, "Struktur des Hochschulwesens und 'Bedarf' an sozialer Ungleichheit", op. cit.; Teichler, Hartung and Nuthmann, Higher Education and the Needs of Society, op. cit.

[4] See for example Claus Offe, "Bildungssystem, Beschäftigungssystem und Bildungspolitik: Ansätze zu einer gesamtgesellschaftlichen Funktionsbestimmung des Bildungswesens," in H. Roth and D. Friedrich, Bildungsforschung: Probleme - Perspektiven - Prioritäten, Vol. 1 op. cit., pp. 217-252.

debates on possible consequences of the quantitative expansion and structural changes of higher education[1].

In summarizing the research on higher education and employment in the Federal Republic of Germany, it can be said that the efforts have brought three major contributions to the debate. First of all, the results of the researches reinforced sceptical views on the arguments about manpower requirements. Second, it has created awareness of some characteristics of the preparatory functions of higher education for employment in the Federal Republic of Germany, for example, the promotion of specific qualifications, and also possible alternatives. Third, it has contributed to a shift of emphasis from quantitative to qualitative aspects of the relationship between higher education and employment.

SOME RESEARCH FINDINGS: THE CASE OF GRADUATES IN ECONOMICS AND ENGINEERING

A summary in this study of all the surveys available on higher education and employment in the Federal Republic of Germany would permit only some extremely broad statements. Therefore, we will limit this overview to the following two fields of studies: economics and engineering. These, two fields have been chosen for several reasons: Firstly, these are the two major fields leading to the private sector where careers are less structured than in the public sector. Secondly, there are more surveys available than on all other fields except teacher training, which has been excluded here because of its particular conditions. Thirdly, use can be made of a detailed review[2] of all the surveys available, the aim of which was to assess the theoretical and methodological approaches as well as the implications of the findings for curricular reform in higher education.

The authors of the above-mentioned review warned the reader not to expect too much from such surveys, because most of them hardly offer any representative data-base, follow extremely divergent approaches and lack sophistication on the concepts of qualification. According to them curricular development can obtain only very broad suggestions from those sources available.

In the sixties and the seventies,the number of students in economics grew less as the average number of students increased. In 1977/78, 10 per cent of all

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[1] See the different views in Riese, "Bildungsexpansion und Hochschulstruktur," op. cit., Gerd Roellecke, "Zwischen Bildung und Akademikerbedarf oder Wohin treibt die Hochschulpolitik?", Deutsche Universitätszeitung, Nov. 16, 1977, pp. 513-517; Ulrich Beck and Michael Brater, "Ist der Erfolg der Bildungsreform Ursache ihres Scheiterns"? in W.-D. Webler and J. Wildt, eds., Wissenschaft-Studium-Beruf, Hamburg: Arbeitsgemeinschaft für Hochschuldidkatik, 1979, pp. 27-34 (Blickpunkt Hochschuldidaktik, No. 52); Dieter Koch and Wilfried Laatz, "Akademikerarbeitslosigkeit und staatliche Hochschulpolitik," in Arbeitsmarktpolitik: Jahrbuch für Sozialökonomie und Gesellschaftstheorie, Opladen: Westdeutscher Verlag, 1978, pp. 141-164.

[2] Busch et al., op. cit., pp. 1-10, 285-7. The review also refers to social scientists and natural scientists.

the students at universities and 14 per cent of students at Fachhochschulen were enrolled in the economicsdisciplines. Of all new graduates in economics in 1975, 43 per cent concluded short-cycle education, 13 per cent passed teaching examinations and 44 per cent other examinations of university level (diploma, other state examination, doctoral degree).

According to the surveys available, about 40 per cent of graduates in economics are employed in the production sector and about 20 per cent each in trade (including banking and insurance), private services and the public sector[1] The data on the distribution of graduates by division of the enterprises vary extremely according to the categories chosen in the surveys. Also a survey about jobs taken over by the graduates revealed a considerable variety[2].

In four surveys the common question was asked; what kind of training was needed for the position currently held by an economist. In a survey on graduates of commerce, 60 per cent considered a graduate in the field of economics to be required for this position, 16 per cent considered substitution possible by a graduate from other fields and 22 per cent by persons not holding a college degree at all[3]. In another survey, personnel managers responded that only 32 per cent of those positions required a graduate of economics, whereas 39 per cent could be filled also by graduates of other fields and 29 per cent by persons without a college degree[4].

According to these surveys, the specific knowledge and skills needed vary considerably according to the different positions held and the different divisions of the enterprise. This does not, however, apply exclusively to specific skills, as answers given by managers andpersonnel managers show.[5] According to a question put to different types of key persons in large enterprises, the general abilities most frequently considered necessary were (in this ranking order) to be able to make decisions and take responsibility, to be able to understand problems, leadership qualities, to be able to negotiate and to convince others, to be willing to take initiative and to carry through[6].

The same key persons were also asked what kind of qualifications or criteria were given first priority. Table 30 gives us the summary of the results. The item "specific knowledge" came top in organization, accounting and purchasing, whereas general abilities such as those previously mentioned were rated higher

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[1] Ibid., p. 64. Cf also Matthias, op. cit., p. 34; Hans Jühe, Berufssituation und Fortbildungsverhalten der Wirtschaftswissenschaftler, Stuttgart: Enke 1975, p. 51;

[2] Cf. Brinkmann and Rippe, op. cit.,

[3] Matthias, op. cit., p. 155

[4] Freytag et al., op. cit., p. 69; cf. also Busch et al., op. cit., p. 121.

[5] See Busch et al., op. cit.,

[6] See Klaus Zeidler, Anforderungen an kaufmännische Führungskräfte: Ergebnisse einer Rollenanalyse, Frankfurt: Akademische Verlagsanstalt, 1972.

TABLE 30 Types of Knowledge and Abilities Required in Positions Held by Graduates of Economics, by Division of Enterprise, according to Ratings by "Key Persons"

Type of knowledge and abilities	Division					
	Purchasing	Sales	Accounting	Organization	Management	Personnel
Specific knowledge	4.6	4.2	5.7	5.7	4.3	4.7
Abilities	4.2	5.1	4.1	4.1	4.7	5.1
General economic knowledge	3.2	2.9	3.7	3.4	3.2	2.7
Personality	3.4	3.6	2.7	3.0	3.4	3.0
General knowledge	3.2	2.8	2.3	2.5	2.8	2.8
Other requirements	1.3	1.3	1.1	0.9	1.3	1.2

Source: Dirk W. Busch et al., Analyse der Tätigkeitsfelder und beruflichen Qualifikationen von Wirtschafts-, Sozial-, Ingenieur- und Naturwissenschaftlern, Vol. 1, Bremen 1979, mimeogr., p. 176; based on Rolf Zeidler, Theorie und Modell, München and Wien, 1972.

The subjects had been asked to allot 20 points to the six categories. The table shows means.

in personnel management, sales and management. Other criteria such as general economic knowledge, personality and general knowledge were rated lower in all divisions[1].

Asked what kind of training should be improved in university education, about 80 per cent of managers and personnel managers called for leadership qualities, rhetoric and techniques of negotiation. About 50 per cent suggested courses in planning and decision-making, organization, planning and policy-making of enterprises, computer science, sociology and psychology related to the enterprise, marketing and accounting[2]. The graduates themselves felt frequently the lack of knowledge in law and computer science[3]. Asked about major deficiencies, many college-trained persons responded that their social skills needed to be improved[4].

The results might obviously serve to criticize the heavy stress on specific skills and the limited concern about social skills. This may be called appropriate, even though these surveys tend, due to methodological problems, to under-rate the importance of specific skills[5]. The authors of the review finally argued that the curricular concepts of "orientation towards occupational practice", etc. are too vague and too divergent to permit any affirmation on the basis of those surveys which lack in convincing curricular conceptions anyway.

The total number of university-trained engineers in the Federal Republic of Germany is about equal to that of the university-trained economists. The engineers are destined, however, to be embedded in a professional pyramid more tightly than the economists[6]. Among the qualified labour in the field of natural science and technology, as of 1970, 12.5 per cent were university-trained scientists and engineers (the latter group 7 per cent), 30 per cent engineers trained at engineering colleges and 57.5 per cent technicians. The total number of students in science and engineering grew less than average in the sixties and seventies. The absolute number of employed university-trained engineers in the late seventies probably did not exceed that of the early sixties, whereas the number of scientists and engineers trained at short-cycle institutions of higher education certainly increased. The unemployment of engineers in the late seventies was somewhat above the average for all college-trained labour, but recently again a shortage of engineers was felt.

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[1] Ibid.; cf. Busch et al., op. cit., p. 176.

[2] Busch et al., op. cit., pp. 222-4, refer to a survey conducted in Austria, but expect similar attitudes in the Federal Republic of Germany.

[3] Jühe, op. cit., p. 137

[4] See Deutsche Gesellschaft für Personalführung, op. cit.

[5] Usually the persons questioned consider some specific skills and knowledge very important. As these vary more than general abilities, the mean scores for the single items of specific qualifications are low.

[6] Busch et al., op. cit., pp. 306-8.

Of all the university-trained natural scientists and engineers, as of 1970, 58 per cent were active in the production sector, 18 per cent in private services and 22 per cent in the public sector.[1] According to the 1970 census, 53 per cent of university-trained engineers were active in research and development, but only 38 per cent of those trained at short-cycle institutions of higher education[2]. According to the 1976 microcensus, 43 per cent of all the engineers were working in research and development, 11-12 per cent each in supervision of production, management and production itself, 8 per cent in trade and 15 per cent in other fields[3].

One of the major debates on the career of engineers concerned the impact of level of educational attainment on career prospects. All the surveys came to the conclusion that university-trained engineers had better chances of promotion than graduates from short-cycle institutions. Table 31 gives a summary of the corresponding results of some surveys[4]. As opposed to the opinion frequently stressed by employers and professional groups, the authors of the review argue that there is a trend towards diminishing opportunities for graduates of short-cycle institutions to be promoted[5].

In a survey conducted by the Association of German Engineers, mechanical engineers were requested to estimate in quantitative terms the extent of qualifications needed and where qualifications were acquired. According to this survey, the work is based one-quarter on knowledge of mathematics and sciences, one-half on knowledge in engineering and one-quarter on non-technical skills (social science, social skills, etc.). The engineers considered that they acquired 75 per cent of the knowledge needed in mathematics and science during their education, but only 50 per cent of their knowledge in engineering and 20 per cent of their non-technical skills[6]. The authors of this and several other studies suggest that curricula in engineering ought to incorporate more elements of the social aspects of the rôle of engineers.

The types of competences required vary considerably according to divisions and to positions held. The work of an engineer close to production and on lower

[1] Hasselmann and Schubert, op. cit., p. 17

[2] Ibid. p. 147.

[3] Friedemann Stooss, "Berufs- und Arbeitsmarktsituation der Ingenieure," in F. Graetz, ed., Der Weg zum Ingenieur: 23 Zukunftsbilder, Vol. 1, Düsseldorf: VDI Verlag, 1978, p. 8.

[4] Based on Joseph Mathieu et al., Beschäftigung und Ausbildung technischer Führungskräfte, Köln and Opladen: Westdeutscher Verlag, 1972; Gerhard Brinkmann, Die Ausbildung von Führungskräften für die Wirtschaft, Köln: Universitätsverlag, 1967; Laszlo Alex, Elektroingenieure und Juristen: Eine Analyse ihres Studien- und Berufsverlaufs, Köln: Institut für sozio-ökonomische Strukturforschung, 1972.

[5] Busch et. al., op. cit., p. 361.

[6] Holger Hillmer, Rolf-Wolfgang Peters and Martin Polke, Studium, Beruf und Qualifikation der Ingenieure, Düsseldorf: Verein Deutscher Ingenieure, 1976.

TABLE 31 Positions Held by Engineers Trained at Universities and Engineering Colleges according to Surveys on Engineers Employed in Private Enterprises (Percentage)

evel of institutional ierarchy	Mathieu 1958 Graduates of: Eng. College	University	Brinkmann 1965 Graduates of: Eng. College	University	Alex 1971 Graduates of Eng. College	University
rst level: manager	3.8	21.1	6.5	16.6	0.0	4.4
cond level: head of division	19.9	35.1	23.3	32.2	11.9	20.4
ird level: head of group	24.0	19.3	70.2	51.2	29.1	31.2
urth level: specialist	52.3	24.5	- *	- *	59.0	44.0
tal	100.0	100.0	100.0	100.0	100.0	100.0

urce: Dirk W. Busch et al., Analyse der Tätigkeitsfelder und beruflichen Qualifikationen von Wirtschafts-, Sozial-, Ingenieur- und Naturwissenschaftlern, Vol. I, Bremen 1979, mimeogr., p. 349.

*his level was not included in the survey.

levels of the institutional hierarchy requires more specific knowledge, whereas work in management, trade, personnel, etc., as well as in higher positions, requires more general knowledge and social skills. The authors of some surveys argued that the higher chance of university-trained engineers to be promoted rested mainly on their superiority in social skills[1]. One of the surveys raised the particular question as to how superior social skills were acquired by university-trained engineers. It pointed out differences mainly in family background and effects of corresponding socialization processes[2].

Little material is available on determinants of the demand for engineers. One survey showed that the difference in the number of employed engineers according to industrial sectors was small. According to this view, the combination of economic and technological factors of each company played a major rôle[3]. Other studies discussed the effects of new technologies of rationalization on engineers. One representative survey in five sectors of industry showed that the introduction of data processing had reduced significantly the number of positions for technicians, office workers and other employees, but had created on the other hand a few additional positions for accounting and data-processing, and did not affect the number of engineers[4]. Two other surveys came to the conclusion that most engineers, as opposed to technicians, did not consider that technological rationalization would restrict their future rôles[5]. Studies on substitution pointed at fairly high realized and potential substitution among engineers and scientists, both horizontally and vertically. There are, however, very few cases of substitution between engineers and natural scientists on the one hand and highly qualified manpower in economics and social science on the other[6].

Several surveys were conducted on the attitudes of engineers to their work rôle. Most of them pointed out that engineers gradually became aware of their restricted work rôle and consider themselves as dependent employees. The surveys showed that the attitudes varied to some extent according to the division of the enterprise, and differed extremely according to the positions held[7].

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[1] Ibid.; Lutz and Kammerer, op. cit.

[2] Oppelt, op. cit.

[3] Kammerer, Lutz and Nuber, op. cit.

[4] Werner Dostal, "Freisetzungen von Arbeitskräften im Angestelltenbereich aufgrund technischer Anderungen," Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 11, No. 1, 1978 pp. 19-49.

[5] Klaus Barck, Otfried Mickler and Michael Schumann, Perspektiven des technischen Wandels und soziale Interessenlage, Göttingen: Schwartz, 1974; see further sources mentioned in Busch et. al., op. cit. pp. 396-405.

[6] Hasselmann and Schubert, op. cit.; Institut für Arbeitsmarkt- und Berufsforschung, Berufliche Flexibilität und Arbeitsmarkt, op. cit.

[7] Heinz Hartmann, et al. Leitende Angestellte: Selbstverständnis und kollektive Forderungen, Neuwied and Berlin: Luchterhand, 1973; Michael von Engelhardt and Rainer - W. Hoffmann: Wissenschaftlich-technische Intelligenz im For-

The authors of the review came to the conclusion that the surveys on engineers showed quite a variation in results as to the question whether an engineer ought to fit into a given rôle or ought to be an agent for change in the nature of work. They considered many surveys to rest on a very sophisticated theoretical basis. In their view, the surveys on engineers offer only very limited suggestions for curricular development[1].

The debate on occupation-oriented curricular reforms in the Federal Republic of Germany in recent years has evoked growing interest in "qualification research", i. e. research on the relationships of the contents of learning and work.[2] It may well be that research will expand and the approaches will be more fruitful in this field in the future.

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schungsgrossbetrieb, Frankfurt and Köln: Europäische Verlagsanstalt, 1974; Niels Beckenbach et al., Ingenieure und Techniker in der Industrie, Frankfurt and Köln: Europäische Verlaganstalt, 1975.

[1] Busch et al., op. cit., pp. 425-433.

[2] See Bergmann-Krauss, op. cit.; "Qualifikationsforschung - ein Beitrag zur Studienreform," in Informationen Bildung Wissenschaft, No. 11, 1978, pp. 215-218. Cf. also Uwe Grünewald, in co-operation with U. Degen and H. Krick, Qualifikationsforschung und berfliche Bildung, Berlin: Bundesinstitut für Berufsbildung, 1979.

CHAPTER 7

THE TRANSFER FROM HIGHER EDUCATION TO THE EMPLOYMENT SYSTEM

INFORMATION, COUNSELLING AND PLACEMENT

In the early seventies, government and official agencies made special efforts to establish an efficient system of information, counselling and placement in the area of higher education. The increasing numbers of students, the debate about possible future mismatches of demand and supply for highly qualified manpower, and the difficulties of students, whose parents had not attended colleges, to cope with the informal information and placement system, necessitated far-reaching changes. A few years later the rising unemployment further emphasized the need for such efforts.

Until the sixties, only a few systematic activities for information, counselling and guidance of university students were to be observed. The secondary school leavers might have heard a lecture by a counsellor from the local employment office (Arbeitsamt) or might have bought a booklet sold by a private publisher explaining the process of enrolment, the institutions and fields of study. In some cases, brochures published by the employment agency and individual counselling at a local office might also have been obtained. But most secondary students relied on the advice given by parents, relatives, older friends or teachers, even for basic information. Also at the time of admission to institutions of higher education there was little counselling for students on how to cope with the administration, the choice of courses, etc., and placement activities were not systematically organized. Those who intended to work in the public sector applied directly to the public employers without any institutional help. As for the private sector, letters from employers might have been put on the notice board of the department; also professors, fraternities and professional organizations played some rôle in the informal placement process, and advertisement on the employers' side and individual search were customary. During the sixties, however, student counselling in universities was improved in order to give advice on curricular matters to students and to help in case of psychological problems.

This informal system did function somehow: about half of the students could rely on parents or relatives who had attended institutions of higher education. Most secondary school leavers, even in the early seventies, had a certain

occupation in mind before they enrolled[1]. It was widely considered a norm to spend the first semester in getting accustomed to the university and to look around at different disciplines and courses. The predominance of the public sector and of the professions in the labour market for graduates structured the placement process, and the rest was more or less solved informally. These conditions, however, changed rapidly during the sixties and seventies.

Public employment services had been legalized in 1927. A Federal Employment Agency (Bundesanstalt für Arbeit) was established in Nürnberg in 1952; on its Board, employers, unions and the government each held one-third of the votes. A law passed in 1957 secured the monopoly of this agency in placement services. The tasks of the Federal Employment Agency and the regional and local employment offices were expanded gradually. Today, their activities include counselling and placement, unemployment compensation, labour market research, relief programmes, financing and organization of re-training, etc.[2].

Most of these activities had hardly touched highly qualified labour, but during the sixties the counselling services for students of the academic track of secondary education were improved. Finally, in February 1971, the Permanent Conference of the Ministers of Culture in accordance with the Federal Employment Agency made public a decision on co-operation between schools and employment agencies. This document emphasized both the rôle of the schools in informing students about the working life as well as that of the public employment agency in placement activities[3].

At the same time, the employment agency extended its activities for students at institutions of higher education[4]. Nowadays, the secondary school students of those institutions leading to higher education receive a monthly magazine free of charge,[5] as well as, a year before the final examination, a book informing them in detail about labour market prospects, institutions and fields of studies, the

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[1] Christoph Number and Inge Krings, Abiturienten ohne Studium, Frankfurt: Athenaeum, 1973, p. 301; cf. also Strangmeier, op. cit., pp. 56-7.

[2] See Bundesanstalt für Arbeit, Die Bundesanstalt für Arbeit stellt sich vor, Nürnberg 1976; Harald Eichner et al., Berufsberatung und Berufslenkung, Göttingen: Schwartz, 1976, pp. 4-12.

[3] "Rahmenvereinbarung über die Zusammenarbeit von Schule und Berufsberatung: Beschluss der Kultusministerkonferenz vom 5. February 1971, "Amtliche Nachrichten der Bundesanstalt für Arbeit, Vol. 19, No. 3, 1971, pp. 132-3; cf. also Käte Mahrt, "Zusammenarbeit von Schule und Berufsberatung", in K. Aurin, P. Gaude and K. Zimmermann, eds., Bildungsberatung, Frankfurt: Diesterweg, 1973, pp. 87-95.

[4] See Paul Bisping, "Zur Bedeutung berufs- und studienkundlicher Vortragsreihen der Berufsberatung," in E. Lange and G. Büschges, eds., Aspekte der Berufswahl in der moderenen Gesellschaft, Frankfurt: Aspekte, 1975, pp. 305-354, esp. 305-312.

[5] Aspekte until 1976, ABI since 1977.

process of admission and financial aid[1]. In addition, there are available occupational interest inventories and brochures on single occupations[2]. The local employment agencies offer lecture series and give advice through specialized counsellors.

Since 1971, students of institutions of higher education also receive a monthly magazine on labour market prospects[3], and, at some colleges, branch offices of the employment agency were established. A co-ordinating office for counselling and placement of highly qualified manpower was also created in Frankfurt, as well as special services at the regional level. The agency in Frankfurt, among others, publishes reports on the development of the labour market for each field of study and offers free advertisement for recent graduates and other unemployed university-trained persons[4].

The quality of materials available and the competence of the staff in charge of career guidance and placement had been improved by the promotion of research[5] and by the establishment of a Fachhochschule to train students specializing in career counselling and placement.

Also, in the last few years, students and graduates grew to rely on the services of the public employment offices for several reasons. Growing unemployment in general and a rising supply of graduates on the labour market resulted in considerable difficulties in finding jobs. Further, due to changes in the system of unemployment relief, recent graduates not having found employment can receive unemployment aid only on the basis of social needs. Unemployment aid is paid usually to persons willing to work but not receiving unemployment compensation, either because the terms of compensation expired or because they were employed only for a brief period or not at all; the aid system does take into consideration, however, the parents' income and the property of the person unemployed, and thus excludes many graduates from such kind of support. Finally, the increased number of unemployment relief programmes, i.e. jobs predominantly paid by the employment agency, are only open to persons registered as being unemployed.

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[1] Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung und Bundesansalt für Arbeit, Studien- und Berufswahl 1978/79, Bad Honnef: Bock, 1978.

[2] "STEP" für Abiturienten: Programm zur systematischen Vorbereitung der Berufswahl für Schüler/- innen der Sekundarstufe II, Nürnberg: Bundesanstalt für Arbeit.

[3] Analysen 1971 to 1976, UNI since 1977.

[4] Zentralstelle für Arbeitsvermittlung, Informationen der Zentralstelle für Arbeitsvermittlung (since 1974); for the services of the ZAV see Gunhild Lütge and Dieter Schweer, Studium - und dann? München: Olschläger, 1978.

[5] The Institute for Labour Market and Occupational Research of the Federal Employment Agency was founded in 1967; see Dieter Mertens, Arbeitsmarkt- und Berufsforschung, Stuttgart: Kohlhammer, 1971.

With the help of lectures and publications, the public counselling and placement system gets in touch with virtually every secondary school leaver. As far as individual counselling is concerned, the Federal Employment Agency counted 129,000 cases in twelve months as of 1976/77 of secondary school leavers entitled to enroll at institutions of higher education, of college students and of graduates, 16 per cent of the total number of cases of individual counselling[1]. This shows that the public counselling for higher levels of education cannot be considered any more a marginal activity, but reaches a percentage close to that for persons of lower educational level.

A survey on students having finished so far about four years of study shows that university students are quite well informed about basic data on the labour market for graduates[2]. As far as placement is concerned, the public employment system plays a much smaller rôle for highly qualified labour than for employees not holding a college degree. Table 32 summarizes some of the available data. It

TABLE 32 Employment Status and Placement of Highly Qualified Manpower as Compared to Total Labour Force, 1977 (in 1,000)

	Highly qualified manpower	All levels of education
Labour force	ca. 1,900	ca. 26,855
Recent school leavers/ graduates	ca. 100	ca. 1,100
Unemployed (annual average)	40	911
Persons newly registered as job searchers	43	4,241
Placement through employment offices	10	2,290

Source: Estimates on labour force based on statistics of Statistisches Bundesamt; for the data on unemployment see Manfred Tessaring, "Uber den Beruf?" UNI, No. 7-8, 1979, p. 27; for job search and placement see Bundesanstalt für Arbeit, Fachvermittlung: Arbeitsmarktbeobachtung im Bereich besonders qualifizierter Berufe im 2. Halbjahr 1977, Nürnberg 1978, p. 1; Bundesanstalt für Arbeit, Daten Fakten 78, Nürnberg 1978, pp. 10-1.

[1] Bundesanstalt für Arbeit, Daten Fakten 78, Nürnberg 1978, pp. 16-7

[2] Heinz Griesbach, Jürgen Hinsenkamp and Reiner Reissert, "Einstellungen von Studenten höherer Semester zu Beruf und Arbeitsmarkt," HIS Kurzinformationen, No. 5, August 1978, pp. 5-7. However, 38 per cent of the students believed that the unemployment quota of university-trained manpower was above the average of that for the total labour force.

may be appropriate to estimate that only about 10 per cent of all cases of placement of highly qualified manpower were handled by the public employment services. Also, it is obvious that many graduates register with the employment office mainly for the sake of unemployment compensation or unemployment aid without expecting much help in their job search[1].

In general, the guidance and placement at colleges is considered still to be far from sufficient. According to the Federal State Commission for Educational Planning and Research Promotion, there was only one guidance counsellor employed at colleges for about every 1,500 students, as of 1975; the BLK called for a change in the ratio to 500: 1 in 1985. Furthermore the ratio of college students to career counsellor employed at employment offices was about 5,000 : 1 as of 1976, and it is not considered that it will change significantly before 1982[2].

There has been some discussion on whether it was appropriate to have a split between counselling on personal matters and courses of study provided by the colleges on the one hand and the career counselling and placement provided by the public employment system on the other, but there have been no moves to change this pattern. The Federal Employment Agency intends to improve the placement of graduates through more decentralization of the specialized personnel, as well as a centralized computer-based information system on job openings and job searchers.

Career guidance is liable, in principle, to be an instrument for adjusting expectations and choice of educational careers to the presumed manpower demand. As concern about oversupply of graduates has become widespread in the Federal Republic of Germany, and at the same time the Constitution guarantees the right of any qualified persons to enroll at institutions of higher education, career guidance could be considered the major tool for adjustment. As compared to such a view, the Federal Employment Agency in its publications does not discourage youth from choosing college education. The publications, especially those written by members of the Institute for Labour Market and Occupational Research, have often been criticized for giving a too optimistic view about the career prospects of graduates and for encouraging youth to choose higher levels of education[3].

The book, distributed free of charge to the students of secondary schools leading to institutions of higher education, is published co-operatively by the BLK and by the Federal Employment Agency. There has been dispute among the institutions

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[1] Cf. the data published in Bundesanstalt für Arbeit, Fachvermittlung: Arbeitsmarktbeobachtung im Bereich besonders qualifizierter Berufe im 2. Halbjahr 1977, Nürnberg 1978.

[2] See Hannelore Faulstich-Wieland, Gerd Köhler and Lothar Müller-Kohlenberg, "Beratung im Bildungswesen: Aufklärung oder Anpassung?" In Gewerkschaft Erziehung und Wissenschaft, ed., Hinter den Barrikaden: Zur Verteidigung der Bildungsreform, Frankfurt: Aspekte, 1976, pp. 195-210, esp. 204-5.

[3] See, for example, Georg von Landsberg, "Unter Wert beschäftigt?" UNI, Vol. 3 No. 1, 1979, p. 32.

involved about the overtones of such recommendations, especially in the chapters explaining the conditions of the labour market for college graduates. The text differs quite surprisingly from one year to another. In one year the text refers to oversupply and increased competition[1]. According to the 1978/79 version, oversupply has to be expected in the eighties, but it is argued that this does not necessarily have negative consequences, for increased competition could counterbalance outmoded traditions in the relationship between higher education and employment and a high supply could also stimulate demand[2]. On the one hand, there is some criticism that the publications of the Federal Employment Agency do not sufficently show the hardships on the labour market for those suffering from increased employment problems since 1973. These criticisms point to hidden unemployment, differences of job opportunities according to sex, etc.[3] It might be worth noting that in this respect the information book mentioned does not refer at all to differences according to sex.

Altogether, it seems justified, however, to state that the official information on the labour market has not been used to direct motives or individual decisions on education and career choices in terms of manpower planning. On the other hand, it cannot be considered either to give a clear picture of the hardships involved for many young people. A cautious guidance seems to dominate as regards to higher education which intends recently to lower the career expectations rather than to discourage decisions to enroll at institutions of higher education. The official publications offer only limited information about the process of placement and recruitment itself and the criteria of the employers. Apart from some essays in the monthly magazines mentioned above, the students have to rely primarily on manuals sold by private publishers, statements made in the media and - rumours.

THE PROCESS OF PLACEMENT/RECRUITMENT AND THE CRITERIA FOR RECRUITMENT

In the Federal Republic of Germany the final examination plays an important rôle in most fields of higher education. The grades given in the final certificate reflect to a great extent the evaluation of the quality of the thesis and oral examinations at the end. Students often ask for a prolongation of the period given to write the thesis or a delay of the scheduled oral examinations. Therefore students can hardly offer their prospective employers reliable information on their grades at college or about the end of their studies before they actually have passed all examinations. This, in fact, makes at least a short period of unemployment for

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[1] Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung und Bundesanstalt für Arbeit, Studien- und Berufswahl 1976/77, Bad Honnef: Bock, 1976, pp. 67-98.

[2] Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung und Bundesanstalt für Arbeit, Studien- und Berufswahl 1978/79, op. cit., pp. 67-92.

[3] See, for example, Sybille Laturner and Bernhard Schön, eds., Jugendarbeitslosigkeit, Reinbek b. Hamburg: Rowohlt 1975.

the sake of job search a matter of course. This short unemployment period is hardly visible in labour market statistics. As of 1978, about 100,000 persons graduated from institutions of higher education; the average number of registered and unemployed graduates of recent graduation counted about 6,000, most of whom were unemployed for less than half a year[1].

In most subjects typically leading to employment in the public sector and to some professions, the students take a first state examination at the end of their studies at college. After that they will have a second phase of training both on the job and at special seminaries for about two years. In this period they have a special status in employment and receive a financial compensation well above grants for students, but less than half of the remuneration they could expect after having ended this training period and passed the second state examination. The fact that a person is not considered to have any proper qualification unless he has passed the second examination, has caused many problems in the last few years. For if the public employers restrict the number of training opportunities for this second phase to their prospective intake and if there is an oversupply of graduates, this system would more or less exclude many graduates from the opportunity to conclude any properly certified training. The system of training and certification obviously is geared to manpower planning, whereas the period of higher education is more open to social demand.

As the public employers at present neither want to change substantially the system of education and training for highly qualified manpower, nor can they ignore the claims of the graduates to conclude a proper training, they actually tend now to compromise with the system. This can be seen, for instance, in the case of teachers where the quota of membership in unions is higher than among other occupations predominantly held by college graduates. Table 33 suggests that this system is presently producing two increasing queues. It should be added at this point that most of the graduates intending to find employment in a private enterprise do not undergo a long, formal training period. According to a survey conducted in 1977, only 38 companies have formal training programmes for university graduates lasting at least 6 months; 770 graduates spent 20 months on average in these programmes. Furthermore, 97 of the 544 large enterprises questioned offer less formal introductory programmes for graduates[2]. Irrespective of length and formalization, the graduates undergoing such programmes do have regular employment status, limited to a certain time span or unlimited, but with provisions about a probationary phase or about periods of notice on the termination of the employment contract[3].

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[1] See Manfred Tessaring, "Uber den Berg"? UNI, Vol. 3, Nos. 7-8, 1979, pp. 26-29.

[2] Georg von Landsberg, "Sonderausbildungsgänge für Hochschulabsolventen - Ergebnis einer Umfrage," in U. Göbel and Schlaffke, eds., Berichte zur Bildungspolitik 1978 des Instituts der deutschen Wirtschaft, Köln:Deutscher Instituts-Verlag, 1978, pp. 155-170.

[3] For employment status and first income see Lütge and Schweer, op. cit.; Grätz, Wer verdient was? op. cit.

TABLE 33 Training and Employment Opportunities for Teachers 1977-78

	1977	1978
a. Recent graduates	38,300	39,000
b. Applicants for second period of teacher training (including persons having spent waiting time after graduation)	41,800	45,300
c. Persons beginning second period of teacher training	34,800	37,600
d. Persons not admitted (b - c)	7,000	7,700
e. Persons passing second state examination	34,800	33,500
f. Applicants for employment (including persons having spent waiting time after the second state examination)	35,100	38,000
g. Newly employed teachers	30,900	32,500
h. Persons not employed (f - g)	4,200	5,500

Source: "Lehrerarbeitsmarkt: Einstellungssituation 1978, in "Erziehung und Wissenschaft, Vol. 31, No. 8, 1979, pp. 2-3; based on data compiled by the Federal State Commission for Educational Planning and Research Promotion.

The institutions of higher education usually do not prepare the student for job search and they are not formally involved in the placement of graduates. Of course some articles in the monthly magazine for students published by the Federal Employment Agency do report about the placement process and employers' expectations, but this material can hardly provide the graduate with sufficient information. Instead, the graduate must rely, as far as information is concerned, on brochures published by employers themselves, guidebooks on private companies employing graduates[1] and on the placement process, and the criteria which play a rôle in the assessment on the part of the employer. As regards the job search, enterprises frequently place advertisements in newspapers. The graduate might also advertise, apply directly, or might be introduced through personal connections. In the public services, almost all vacant positions are announced publicly and the graduate might apply referring to such notification of positions available.

There is hardly any systematic information available about the placement and recruitment process as such. It might be safe, however, to assume that the guidebooks sold in this field to graduates[2] and employers[3] somehow reflect the prevalent procedures. The graduates in some fields of the public sector have better opportunities of being admitted in the state of their alma mater. Persons seeking employment in private enterprises will have to be regionally mobile and apply at many enterprises. The job-seekers are usually expected to send curriculum vitae and credentials to the employers, but many employers send in addition a questionnaire asking for present data usually referred to in curriculum vitae and credentials in a standardized form. In this way they sometimes get more detailed information about the candidate. After screening the written materials sent in advance, the employers rely most strongly on interviews. They might, however, also ask for recommendations, get in touch with previous employers and in some cases with the teaching staff, order graphological evaluations of the handwritten curriculum vitæ, administer tests and require candidates to respond to additional questionnaires collecting attitudinal information. In the interview, the employers will touch upon topics such as the candidate's skills and experiences, his knowledge of the employing institution and the job, his attitudes towards colleagues, superiors and subordinates, expectations about the job and career aspirations. The interview also will include detailed information about the work tasks and the working conditions. The candidate may ask detailed questions, but according to the existing norms he is expected not to be too much concerned about income and security[4].

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[1] Peter Schulz, Firmenspiegel für Bewerber 76/77, 6th edition, Königstein/Ts.: Königsteiner Verlag, 1976.

[2] See for example, Lüthge and Schweer, op. cit.; Dieter Dröll, Erfolgreich bewerben .. wenn's schwierig ist, 4th edition, Frankfurt: Societats- Verlag, 1979.

[3] See Heinz Knebel, Das Vorstellungsgespräch, 5th edition, München: Verlag Moderne Industrie, 1978, and the publications in the bibliography presented in that book.

[4] Lüthge and Schweer, op. cit., p. 57

As regards behavioural strategies in the process of job search, guidebooks especially discuss how the behaviour during the interview should be in general as well as how to handle written and verbal questions about personal matters. As for the former aspect, guidebooks advise the candidate, among others, to be well-dressed, to show much interest in the enterprise and the job, to talk about their own strengths and to explain, if necessary, the reasons for weak points, and finally to raise detailed, but not too career-minded and too security-minded questions about the work, the contract and the working conditions[1].

As for information about the person, a guidebook for employers suggests not to ask detailed questions in a first questionnaire sent in advance, but rather in a second questionnaire presented to the candidate during his visit to the company for the purpose of the interview. The example of a questionnaire presented in the guidebook includes questions such as: "What do you do in your leisure time? Which periodicals do you read? Please name the five persons you admire most of all. What kind of abilities are most important for a salesman? What are, in your opinion, the worst evils of human society? What were your own faults and errors which gave you the best lesson for the future? Putting yourself in the place of the employer, by what means would you propose that he get accustomed to you as soon as possible?"[2]. A guidebook for job-seekers warns the graduates to be aware of questions which are not related to the purpose of making known the personality and the skills and abilities of the candidate. If there were questions beyond this, for example about political attitudes, the candidate should not hesitate to argue that these questions are too personal. The candidate should know that he has the right, from the legal point of view, to give incorrect answers to such inappropriate questions[3].

Information available on the employers' criteria in evaluating the graduates is scarce, as far as research is concerned. There are, however, many examples of criteria in guidebooks as well as public statements of employers on what kind of graduates they are looking for. This information often concentrates on three topics: the rôle played by credentials, what kind of knowledge and experience will be highly appreciated and what kind of attitudes towards work and society will be expected.

The public employment system consists of four career ladders corresponding to compulsory schooling, intermediate education, short-cycle higher education and university education. The applicants must have acquired the corresponding credentials for the first employment; there are, however, some opportunities to be promoted to positions belonging to a higher career ladder.

The private employers tend to emphazise that they do not take into account the credentials very much. According to one survey conducted in 1977, 51 per cent of employers see equal opportunities for Abiturienten and university graduates to be promoted in the company; 14 per cent even expect higher chances and only

[1] See the list of proposals given in guidebooks for graduates summarised in a guidebook for employers: Knebel, op. cit., pp. 107-111.

[2] Ibid., pp. 84-7.

[3] Lüthge and Schweer, op. cit., p. 31

4 per cent lower chances of promotion for those having concluded upper secondary education[1]. Also employers claim that graduates of short-cycle higher education are on equal terms with university graduates as far as the chance to be given higher positions is concerned[2].

Popular statements by personnel managers make clear that the weight given to credentials is about one-third of all criteria. One survey, conducted in 1978/79 in the south-western area of the Federal Republic of Germany, came to the conclusion that grade points for higher education credentials play a lesser rôle than personal impression, occupational experience gained during the educational career and proficiency in foreign languages. The results have been summarized in Table 34.

According to this survey, it did not matter very much which university a candidate had attended. However, the results of another survey, conducted in 1977, received wide attention from the public, in which the employers were asked to make a ranking order of institutions according to their preference of employing graduates. As mentioned above, this methodologically weak survey might lead one to believe in the existence of a steep hierarchy among institutions[3]. The results of both surveys cannot necessarily be considered to contradict each other: the employers might have preferences as regards the universities, but these do not overshadow all other criteria.

A guidebook for graduates advises those students who did not succeed in getting good grades to be very modest in their expectations: "What should one do, if one is a graduate of commerce only graded "satisfactory". In the light of an impressive supply of "good" graduates of commerce, it is not reasonable to compete with them. It is preferable to expect a somewhat lower starting position, to climb down a little .... The central importance of the examination grade in the screening of recent graduates and the wealth of supply of "good" and "very good" candidates obviously does not make it advisable for "satisfactory" or "sufficient" candidates to place all their hopes solely on the diploma"[4].

Employers' representatives also state frequently that they prefer graduates who are young and had not spent much more time than required at colleges. One survey on career data, however, suggests that, at least in the past, the number of semesters spent at university correlated positively with high position and income[5]. It is probably appropriate to conclude that a higher level of

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[1] See Göbel and Schlaffke, Berichte zur Bildungspolitik 1978 des Instituts der deutschen Wirtschaft, op. cit., p. 273.

[2] See, for example, Schlaffke, "Berufschancen für Akademiker - Forderungen und Erwartungen aus der Sicht der Wirtschaft," op. cit., p. 196.

[3] "Deutsche Hochschulen auf dem Prüfstand," op. cit.

[4] Dröll, op. cit., pp. 148-9

[5] Dieter Dröll and Regina Dröll, Karrieren: 10,000 Lebensläufe auf dem Prüfstand: Welche Faktoren bestimmen den Berufsweg? Frankfurt: Societäts-Verlag, 1974, pp. 152-4.

TABLE 34 Weight Placed on Different Criteria in the Recruitment of College Graduates by Employers - Survey in Enterprises in Southwest Germany 1978/79 (Percentage)

Recruitment criteria	1 (not important)	2	3	4	5 (important)	Not weighed	Total	Mean score
Personal impression made	1	1	5	22	67	4	100	4.60
Praktikum*	2	5	21	30	36	6	100	3.99
Foreign languages	7	12	22	28	23	8	100	3.51
Grades in examination	4	12	49	26	4	5	100	3.16
Test scores**	16	12	24	17	6	25	100	2.83
Topic of thesis	17	24	26	20	5	8	100	2.70
Location of university attended	28	26	24	11	3	8	100	2.28

Source: Hans Hoerschgen et al., Der Markt der Wirtschaftswissenschaftler, Stuttgart: Universität Hohenheim, Institut für Betriebswirtschaftslehre, 1979, pp. 20, 72.

*Phase of occupational experience before or during university studies

**Tests administered by the employers in the recruitment process

education and additional qualifications acquired will on average be rewarded positively, notwithstanding the fact that in recent years employers have observed more carefully than in the past whether prolonged study has added to the competences or whether it indicates lower achievement or limited adaptability to the routine of working life.

The statements about the type of skills and competences preferred by the employers[1] are not easy for students and graduates to comprehend. In particular private employers often call for a stronger occupational orientation of studies, but students enrolling in institutions stressing a new model of occupational orientation might face disadvantages on the labour market because most employers might think of other concepts of occupational orientation or might rate higher the quality of graduates from traditional courses. The call for occupational

[1] For employers' statements on qualifications required see, for example, Ludwig Kroeber-Kenneth, Zuviel Akademiker?, Freiburg i. Br.: Herder, 1972; Hans Dichgans, "Was erwarten die Unternehmer vom wissenschaftlichen Nachwuchs?" Deutsche Universitätszeitung, No. 8, 1974, pp. 326-7; Anne Beelitz and Burghard Freudenfeld, "Unternehmerinteresse und Hochschulbildung," in Lohmar and Ortner, eds., op. cit., pp. 106-126; Georg Juraschek "Der Akademiker in der Wirtschaft - Bedarf und Anforderungen", in Frister et al., Bildungssystem und Berufsaussichten von Hochschulabsolventen, op. cit., pp. 114-129; Schlaffke, "Berufschancen für Akademiker - Forderungen und Erwartungen aus der Sicht der Wirtschaft," op. cit.

orientation is often considered to have in mind fairly specialized criteria, but in explaining what kind of occupational orientation is expected, many employers' representatives suggest more flexibility, creativity, knowledge of foreign languages, problem-solving abilities, etc. At the same time, it is widely assumed that employers often choose a candidate who can offer, in addition to the general level of competence, some specific knowledge or experience[1].

This array of seemingly divergent information might be understandable for experts. Apart from the difficulty in weighing the criteria relevant in the multi-stage process of screening of the candidates and notwithstanding the variety of requirements for different positions, there seems to be a general trend that private employers place more value on a broad basis of knowledge within many fields of studies and the ability to cope with unforeseen tasks and social skills[2]. At the same time, arguments in favour of generalized knowledge reflect, in some cases, concern about oversupply of special skills and a desire for socially adaptable persons. However, employers might prefer persons offering special competences when the competing candidates are more or less equal in their general knowledge and abilities. But the students and graduates hardly receive consistent explanations. In addition, such explanations of the existing variety and ambiguity cannot carry very far in individual decision-making on one's study and the strategy to be used in the job search.

More consistency of statements can be observed for the third major topic of information about recruitment criteria. Employers seem to place considerable emphasis on social skills and value orientation. Responsible for this may be many of the developments on the part of the employment system and of the society at large: a growing diversity of value orientation, mobility of the elite, a growing awareness of the societal implications of technological changes and economic developments, and increasing indifference towards work as a consequence of rationalization[3]. But this emphasis placed on social skills and value orientation also reflects the traditional characteristics of higher education in the country, the research orientation as well as the social distance between higher education and business and more recently the changes in the political attitudes of students since the mid-sixties[4]. As Table 35 indicates

[1] See, for example, "Wenn Noten nur mit Zusatz zählen", UNI, Vol. 1, No. 4, 1977, pp. 26-9.

[2] See for example the preliminary findings of an unpublished study on "Studienreform und Berufspraxisbezug" of the Institut für Soxial - und Bildungspolitik in Hamburg.

[3] Cf. also the consequences for further education discussed in Enno Schmitz, "Erwachsenenbildung, Arbeitsteilung und soziale Verteilung von Wissen, in J. Raschert, op. cit., pp. 129-168.

[4] See the overview on studies about students and politics in Wolfgang Kraushaar, Student und Politik: Eine ausgewählte und kommentierte Bibliographie unter bes. Berücksichtigung sozialpsychologischer Aspekte, Hamburg: Arbeitsgemeinschaft für Hochschuldidaktik, 1979 (Hochschuldidaktische Materialien Vol. 69).

TABLE 35 Attitudes Towards Principles of Remuneration - Opinion Polls 1977-78 (Percentages)

Question	University students 1978 %	Adults 1977 %	Youth 16-19 years old 1977 %
"Which of the following phrases do you prefer?"			
"Achievement ought to be rewarded"	37	58	46
"More equality of income"	47	31	43
Others, no answer	16	11	11
Total	100	100	100

Source: E. Noelle-Neumann, "Wie demokratisch sind unsere Studenten?" Frankfurter Allgemeine, Oct. 2, 1978.

the percentage of students supporting egalitarian views on society is much higher than that of the public in general. Also, employers are concerned that the majority of student bodies are controlled by groups which consider themselves leftist as compared to the government coalition[1] and that many students disagree with the existing social order. According to a survey conducted in 1978, 20 per cent of university students prefer a planned economy and consider the society to be basically antagonistic[2].

Thus, public employers decided in the mid-seventies to examine all the prospective college-trained civil servants (including teachers) as regards their political past; in this way, a certain loyalty ought to be secured to the social order determined by the Constitution. The private employers also have placed in recent years

[1] See Göbel and Schlaffke, eds., Berichte zur Bilaungspolitik 1978 des Instituts der deutschen Wirtschaft, op. cit., p. 271. It only holds true since the mid-seventies, however, if the "Young Socialists", the youth organization of the Social-Democratic Party, are considered to be left of the SPD;

[2] Waldemar Krönig, "Politische Einstellungen der Studierenden Höherer Semester 1978", HIS Kurzinformationen, No. 4, 1979, pp. 4-5. Some surveys come to the conclusion that the majority of students are left-wing by taking indicators such as small numbers of students expressing serious concern for example about a possible government coalition in France including communists. see Elisabeth Noelle Neumann, "Wie demokratisch sind unsere Studenten? "Frankfurter Allgemeine, Oct. 2, 1978.

more emphasis on loyalty in public statements about curricular reform in education and recruitment criteria.

In summarizing the information available on the criteria that public and private employers in the Federal Republic of Germany apply in recruiting graduates from institutions of higher education, it might be appropriate to state that they do not very much differ from those in other societies. They reflect, though, quite a social distance between higher education and the occupation system, as far as attitudes and expectations are concerned. This is visible, for example, in the widespread notion about a "practice shock" which graduates face after being employed and in suggestions frequently made by advisors and superiors to graduates to "forget what they have learned"[1]. This does not mean, however, that employers only stress adaptibility in their statements on recruitment criteria, but also innovative attitudes, critical thinking and a search for new norms. To cite one example: "The question of the meaning of our activities and efforts cannot be answered any more by pointing to wealth and social justice. Debates on economic growth, and problems of energy will become more heated, the search for new ways of problem-solving and new ways of life will be intensified, and the question will be raised more urgently, how the quality of life can be realized. Here, institutions of higher education cannot just analyse problems and raise further questions, they have to search for answers."[2]. The concept of research-oriented higher education, at least, reinforces the debate both on higher education and the employment system about what kind of relationship between higher education and work could ever be creative.

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[1] See, for example Der Praxisschock, ed. by Arbeitsgruppe Aumeister, München: Urban und Schwarzenberg, 1976.

[2] Schlaffke, "Berufschancen für Akademiker - Forderungen und Erwartungen aus der Sicht der Wirtschaft," op. cit., p. 206.

CHAPTER 8

CHANGING RELATIONSHIPS BETWEEN HIGHER EDUCATION AND EMPLOYMENT : THE IMPACT OF INCREASED NUMBERS OF STUDENTS

POSSIBLE DIRECTIONS FOR DEVELOPMENT

The expansion of higher education in the Federal Republic of Germany has caused a supply of graduates on the labour market which, since about the mid-seventies, exceeds the requirements, according to traditional views as regards the needs of the employment system. There are opposing views as to the needs of the economy and the society, but these concepts are not based on the assumption that higher education, the jobs of the graduates or the relationship between higher education and employment will basically follow the traditional pattern either. There exists, therefore, considerable uncertainty and a variety of views about the consequences of the high number of students and what kind of measures ought to be taken to shape this development. This chapter will discuss in detail the major trends, debates and measures in recent years responding to the expansion of higher education, which has been briefly mentioned in chapter 5.

Changes in response to the increased supply of graduates can be expected in many ways. The increase in the number of graduates could:

(a) have a feedback to the number of students, for example by lowering the expectations of secondary students or by spurring actions to restrict admissions,

(b) engender changes in higher education and its outcomes, for example changes in the quantitative distribution of different types of institutions and study courses, of the curricula etc.

(c) have an effect on the relationship between higher education and employment itself and thus the labour market prospects of graduates, for example in modifying the value of credentials,

(d) lead to a change in the organization of work and the job-roles[1].

[1] See also the categories on political strategies in Teichler, Hartung, Nuthmann, Hochschulexpansion und Bedarf der Gesellschaft, op. cit., pp. 114-124.

A first glance at higher education and employment in the Federal Republic of Germany shows that there is not any dominant trend towards just one of the above outlined directions. Also, there are quite divergent views as to the desirability of the possible consequences of the different directions of adaptation to a high number of students and college-trained manpower. Therefore, this chapter will analyse signs of development trends, measures and deliberations towards all the directions and explain their relative weights and major problems involved.

THE IMPACT ON THE NUMBER OF STUDENTS

A permanent adjustment towards high supply of college graduates would be superfluous if the number of students declined or was cut back to a size corresponding to the traditional notions of demand. Therefore, trends and measures related to enrolment will also be discussed in this chapter.

The quantitative planning of higher education in the Federal Republic of Germany in the seventies followed, as has been shown in chapters 5 and 6, a compromise between social demand for higher education on the one hand and concern about oversupply of graduates and high expenditures of higher education on the other. The decision of the Federal Constitutional Court that the right of the qualified individual to enroll must be predominant, has certainly led to a larger increase in the capacity of institutions than otherwise could have been expected. At the same time, however, the targets for increasing capacity were set below the projected increase in numbers of youth intending to enroll. In addition, increased restricted admission was taken for granted in higher education planning for a couple of years in the early and mid-seventies. In the meantime, restricted admission was reduced somewhat, but a more permanent system of restricted admission for a few subjects is on the way[1].

The percentage of youth concluding any type of college-preparatory secondary education continued to grow in the seventies. It increased from 19 per cent in 1973 to 25 per cent in 1977. But the percentage of beginner students of the corresponding age-group remained more or less constant at about 18 to 19 per cent during this period[2]. Regular surveys on further education plans of college-preparatory secondary school students (Gymnasium and Fachoberschule) during their final year indicate, as Table 36 reveals, a decrease in the intentions to enroll at institutions of higher education. Although follow-up surveys show that many

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[1] As for the new system of admissions incorporating tests see "KMK: Neuordnung der Hochschulzulassung," Deutsche Universitätszeitung, No. 12, 1977, p. 387; "KMK: Die 184. Plenarsitzung in Wiesbaden", Deutsche Universitätszeitung, No. 23, 1977, pp. 764-5; "KMK: Mediziner-Test erst 1980/81; Deutsche Universitätszeitung, No. 7, 1979, p. 213.

[2] Cf. the collection of data in Wissenschaftsrat, Empfehlungen zum neunten Rahmenplan, Bonn 1978.

TABLE 36 Further Educational Plans of College-prep Secondary Leavers (in percentage)

Year of Secondary School Completion	Intend to enroll at institutions of higher education	Undecided	Do not intend to enroll at institutions of higher education	Total
1971	87.2	7.2	5.6	100.0
1972	89.7	6.2	4.1	100.0
1973	88.4	7.0	4.6	100.0
1974	84.6	9.3	6.0	99.9
1975	78.8	12.4	8.8	100.0
1976	75.3	15.4	9.3	100.0
1977	72.7	16.9	10.4	100.0
1978	69.3	18.4	12.3	100.0

Source : "Grössere Unsicherheit der Abiturienten über weiteren Bildungsweg," Informationen Bildung und Wissenschaft, No. 38 (September 1975), p. 987; Bundesminister für Bildung und Wissenschaft, Grund- und Strukturdaten 1978. Bonn 1978, p. 56.

secondary school leavers later change their minds[1], the rate of transfer seems to diminish.

There was a debate whether, and to what extent, the financial burden of the students and their families had increased[2]. At least for a few years the scholarships were not increased proportionally to the rising living costs of students; also it became more difficult for students to find side-jobs. These financial problems might have scared away some prospective students, but in general the view has been shared among experts that this can explain, at best, only a small part of the levelling-off trend in enrolment. Restricted admission to some fields did not probably contribute directly to the levelling-off in college enrolment. On the contrary, the increasing appearance of numerus clausus seems to have had an advertising effect for these fields of studies around 1970, for the number of students applying to these fields grew over-proportionally, and especially secondary-school students with high grade point average changed their minds in favour of restricted subjects. Up to now it has generally been assumed that students who want to enroll in numerus clausus subjects rarely give up their plans to study, but rather wait to be admitted to that field or choose another field of study. The numerus clausus might, however, have contributed indirectly to the changing aspirations; it was part of the dark prospects secondary school students thought of when making up their minds.

Certainly the labour market prospects have had an effect on the educational aspirations of youth. It is questionable, however, to what extent this was the result of a market process itself. On the one hand, proponents of traditional manpower notions frequently argued that the campaigns of reformers in the sixties for equality of opportunity and educational expansion had artificially inflated the aspirations and therefore had to be responded to by more realistic information. On the other hand, critics of such a view sometimes argued that there was heavy campaigning on the part of many employers and politicians in the early seventies and that

[1] In 1976. about 10 per cent of those previously intending to enroll had given up their plans to study a few months after concluding their secondary education. However, about one-eighth of those who previously were uncertain, or did not want to enroll, had begun their studies; see Lothar Birk et al.: "Zum Projekt Formen und Dauer der Ausbildungswege von Abiturienten", HIS Kurzinformationen, No. 1, 1978, p. 10. Cf. also Lothar Birk et al., Abiturienten zwischen Schule, Studium und Beruf - Wirklichkeit und Wünsche, München: Verlag Dokumentation, 1978; Heinz Griesbach and Karl Lewin: "Veränderungen im Studien- und Berufsverhalten der Abiturienten vom Jahrgang 1976 zum Jahrgang 1977," HIS Kurzinformationen, No. 1, 1979, pp. 1-16.

[2] See Bundesminister für Bildung und Wissenschaft, Das soziale Bild der Studentenschaft: 8. Sozialerhebung des Deutschen Studentenwerks, Bonn 1978; Heinz-Peter Moritz and Gudrun Meier, "BAFöG und Chancengleichheit", Deutsche Universitätszeitung, No. 3., 1975, pp. 78-81.

these sinister predictions might have deterred many young people from enrolling at institutions of higher education[1].

According to some views, the arguments about the oversupply have proved to be a "self-destroying" prophecy. The teachers union, Gewerkschaft Erziehung und Wissenschaft, sees a shortage of teachers in some fields to be likely in the near future. This might be true for some areas, but altogether it must be said that the ratio of college-going youth did not drop and that the output of the colleges will lead to an increase in the number of college-trained manpower, which is very likely to be accompanied by substantial changes in the relationship between higher education and employment. However, there seems to be one far-reaching effect of this alarm about expansion in higher education, which will be discussed in the next section; the arguments about the poor job prospects seem to have a serious effect of demotivation on those youth who do enroll at institutions of higher education.

THE IMPACT ON THE SYSTEM OF HIGHER EDUCATION

In the seventies, many proposals were made in the Federal Republic of Germany to reform the institutional patterns of the higher education system, types of courses, the system of examination and graduation and, last but not least, curricula. As has been explained above, these debates on reform began before the concern became widespread on a possible oversupply of graduates. We can now observe a variety of aims of reforms which had developed at different historical stages in the relationship between higher education and employment, but their proponents do not consider them bound to a certain relationship of supply and demand or a short period of development in higher education as well as in the occupation system. A short account of the various positions and the major goals cannot, of course, show the complete wealth of different views and the large number of proposals and reforms A somewhat simplified summary is called for. There can be observed three major directions of reform goals and proposals:

1. The reformist direction favours institutional patterns and curricular reform, which minimizes a hierarchy of quality and job prospects. The aim is to educate individuals who are able to contribute actively to reform of the occupation system and the society. The traditional aims of German universities to relate teaching and research, as well as to develop individuals through research orientation are positively referred to in the proposal to motivate "inquiring learning" (forschendes Lernen) as the basic principle. As opposed to the traditional principles, this reformist direction proposes an integration of research orientation and an orientation towards work experience (Praxisbezug des Studiums), which fosters early anticipation of the actual tasks graduates will face in the employment system and in the society in general. An institutional integration towards

[1] See the overviews on the debate, in Lohmar and Ortner, eds., op. cit., Frister et al., op. cit.; Stifterverband für die deutsche Wissenschaft, Bildungsexpansion und Beschäftigungsstruktur am Beispiel des Abidurientenproblems, Essen-Bredeney, 1976; Teichier, Hartung and Nuthmann, op. cit.

comprehensive universities was frequently suggested, whereby the study programmes ought also to be integrated. Some of the aims had been formulated by reformist professors and the German Socialist Student Association (Sozialisticher Deutscher Studentenbund - SDS)[1] in the sixties, and many of these concepts were later elaborated by the Federal Conference of Assistants (Bundesassistentenkonferenz - BAK)[2] around 1970. In the seventies, the Study Group for Didactics of Higher Education (Arbeitsgemeinschaft für Hochschuldidaktik - AHD)[3] and the Union for Education and Science (Gewerkschaft Erziehung und Wissenschaft - GEW)[4] were the major proponents of this direction.

2. A second direction emphasized mainly the preservation of a strong research-oriented sector of higher education as well as the establishment of a diversified system of higher education. According to this view, there is a danger of watering down the quality of research, as well as the education of talented students, if one tries to guarantee more or less equal standards for the total system. At the same time, it is argued that higher education has to take into account the more diverse future occupational röles of 20 per cent of the age-group being enrolled now as compared to about 5 per cent for whom the traditional pattern was appropriate. This view favours a disciplinary orientation for the typical courses at universities. Sometimes proposals have been made to establish a multi-stage system of courses, similar to that of the United States. Proponents of this second direction used to be in favour of the introduction of short-cycle courses at universities, in addition to research-oriented long cycles, and vocational higher education at Fachhochschulen. The major proponents of this direction used to be the representatives of universities and researchers in the Science Council (Wissenschaftsrat)[5]. The Higher Education Association (Hochschulver-

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[1] Sozialistischer Deutscher Studentenbund, Hochschule in der Demokratie, Frankfurt 1961; Nitsch et. al., op. cit; Stephan Leibfried, ed., Wider die Untertanenfabrik, Köln: Pahl-Rugenstein, 1967.

[2] Bundesassistertenkonferenz, Kreuznacher Hochschulkonzept, Bonn 1970; Bundesassistentenkonferenz, Uberlegungen zur Gesamthochschule, Bonn 1969; Bundesassistentenkonferenz, Forschendes Lernen - Wissenschaftliches Prüfen, Bonn 1970.

[3] Cf. the Series "Blickpunkt Hochschuldidaktik", "Hochschuldidaktische Materialien" and "Informationen zur Hochschuldidaktik"; for recent documents on reform goals see Ludwig Huber, ed., Öffnung der Hochschulen - Probleme und Folgen für Hochschule und Studienreform, Hamburg: Arbeitsgemeinschaft für Hochschuldidaktik, 1977.

[4] Cf. for example Stephan Freiger, Bernhard Nagel and Christian Rabe, eds., Was wird aus der Studienreform? Frankfurt: Fischer, 1974.

[5] Wissenschaftsrat, Empfehlungen zu Umfang und Struktur des Tertiären Bereichs, op. cit.; Wissenschaftsrat, Differenzierung des Studienangebots, op. cit.

band)[1], the major organization of university teachers, and the West German Rectors' Conference (Westdeutscher Rektorenkonferenz - WRK)[2] frequently supported some of these views.

3. The third direction favours a stronger orientation of higher education towards the assumed prevalent requirements of the occupation system. According to this view, university education should be concerned about the quality of research, but at the same time prepare the students more directly for leading positions in government, business and professions. Proponents of this direction favour on the one hand a clear-cut division of higher education between university-level education for research and for leading positions requiring high intellectual competences, and, on the other hand, higher vocational training strongly related to occupational practice, especially in intermediate ranks but to some extent in higher ranks also. This direction had its institutional basis in particular amongst employers' associations,[3] and some professional organizations,[4] especially among engineers and businessmen; in addition, it has been supported by a large fraction of Rectors of the Fachhochschulen[5].

The political parties, government and planning agencies in higher education have played a less active rôle in this area than in the case of quantitative planning and financing of higher education - perhaps with the major exception of the Science Council, which combines institutionally the platform for structural and curricular reforms in accordance with the second direction and the capacity planning of higher education. The federal government in the seventies, and those state governments based on a coalition of the Social Democratic Party and the Free Democratic Party, have developed concepts which attempt to integrate elements from all three directions, whereas the Christian Democratic state governments tend to develop compromises between the second and the third directions[6].

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[1] See for example "Was wird aus der deutschen Universität (special issue), Mitteilungen des Hochschulverbandes, Vol. 23, No. 4 pp. 217-222; Wolfram Engels, "Bildung ohne Leistung und Wettbewerb", Mitteilungen des Hochschulverbandes, Vol. 22, No.6, 1974, pp. 347-352.

[2] See for example Planspiel und Praxis-Offnungskampagne, Streichungspolitik und der Auftrag der Hochschule, Bonn: Westdeutsche Rektorenkonferenz, 1978 (Dokumente zur Hochschulreform, Vol. XXXI).

[3] Bundesvereinigung der deutschen Arbeitgeberverbände, Beschäftigungssystem und Akademikernachwuchs, Köln 1976; Bundesvereinigung der Deutschen Arbeitgeberverbände, Fachhochschule - Kurzstudiengänge, op. cit.; Göbel and Schlaffke, Berichte zur Bildungspolitik 1979/80 des Instituts der deutschen Wirtschaft, op. cit.

[4] Cf. for example, "Dringende Forderungen des VDI zur Ingenieurausbildung," VDI Nachrichten, July 13, 1979, p. 15; Verband Deutscher Elektrotechniker, Vorschläge zur Ingenieurausbildung, Frankfurt 1978.

[5] Cf. for example Jürgen Tippe, "27 Thesen zur Reform der Ingenieurausbildung Die neue Hochschule, No. 76, 1975.

[6] Cf. the excerpts of documents in Teichler and Voss, op. cit.; "Hochschulrahmengesetz: Synopse, Stellungnahmen, Dokumente", Studentische Politik, Vol. 5, Nos. 5-7, 1972, "HRGE 2", Studentische Politik, Vol. 7, Nos. 1-2, 1974.

The efforts to establish compromises and the difficulties in making them accountable to all three directions might be demonstrated with the help of some excerpts from the "22 Landmarks for Study Reform" presented by the Minister for Education and Science in 1978:

> "... (iv) Since the purpose of lengthy higher education used to be more than the mere acquisition of skills and abilities useful for the job, this should be true also in the future ...
>
> (v) On the other hand, higher education has been for some time career preparatory in most disciplines and will remain so in the future even more than in the past. Due to its responsibility for the young generation, educational reform must take into account the realities and the perceptible trends of the employment system. College teachers must be aware of their share of the responsibility for the occupational opportunities and risks of students. All members of higher education institutions must accept the fact that the society bearing high costs for higher education does expect accomplishments of a highly qualified calibre...
>
> The orientation of studies towards occupation neither means to gear them to specific job-rôles, nor to emphasize inappropriate efforts to 'predict' the world of work in 2000 or 2020... Nevertheless, there are at least two obvious factors which can no longer be overlooked by those responsible for planning of higher education. Today, there are not only many more students but also their education and socialization have become different from that of 20 years ago. The range of abilities and inclinations of the social and educational background and of occupational aspirations has widened. Higher education has to take this into account by means of increasing diversification of study programmes ... The time of a shortage of labour in general and of an undersupply of academics has gone, at least for the immediate future... Competition for higher positions in the world of work will become intense. A considerable share of graduates will, at least at the beginning of their careers, take over positions which do not at all or do not fully correspond to their original aims, be that in terms of specialization or in the level of position obtained. Curricula in higher education have to take this into account; students must be helped by increasing the orientation of studies towards practice, by improving counselling and by fostering the students' orientation towards occupations by offering a sufficient basic education in all fields and thus enlarging the occupational opportunities of graduates, and by reducing the risks of wrong decision by offering diversified courses, including opportunities for advanced studies and further education ...".[1]

[1] Bundesminister für Bildung und Wissenschaft, 22 Orientierungspunkte, op. cit., pp. 7-9; cf. also Wieland Hempel, "Thema Orientierungspunkte: Worum es in der Studienreform geht," Deutsche Universitätszeitung, No. 24, 1978, pp. 754-5.

From the sixties until the early seventies, reforms related to the general institutional patterns of higher education tended to reduce the differences in standards and types of courses. The widening of the programme at the technical colleges and their renaming as Technische Universität, the upgrading of teacher training and the establishment of some universities for humanities and teacher training, the upgrading of former higher vocational colleges to Fachhochschulen and especially the establishment of comprehensive universities have been measures in that direction. In recent years, however, criticism of the experiences of the first steps of reforms mentioned above as well as a general change in the political climate and the expectation of "overqualification" due to the expansion of universities, resulted in increasing differences in standards and institutional types. The setting-up of comprehensive institutions came to a halt, Fachhochschulen stressed more strongly that there exist differences between their courses and those at universities, the number of institutions of higher education geared to special occupational fields grew especially due to the decision of governments to establish a special status of short-cycle institutions for public administration, and finally Berufsakademien[1] -located between institutions of higher education and higher vocational schools - were established.

The institutional diversity also might have increased in the seventies due to growing differences in standards among formerly equal institutions and due to new specializations and reform models in many institutions. This does not mean, however, that there has developed a variety of institutions like in the United States. First, government and professional organizations emphasized common guidelines for curricula and examination more strongly than before:[2] it is difficult to establish whether this led in effect to more similarities of curricula or just kept increasing diversity at least within some bounds. Second, all institutions are expected to be research-oriented to some extent and to care for occupational orientation in their curricula, as the Framework Act for Higher Education of 1975/76 stated.

There have been substantial efforts to establish new fields of studies, for example ecology, city planning, information sciences or area studies, or to modify courses of studies in established fields. Many of these activities intended to open new occupational fields below both the scholarly requirements and the status of the traditional academic occupations. These reforms owed much to the initiatives of the institutions of higher education, planning agencies or representatives of the occupation system. As for planning agencies, the Federal-State Commission for Educational Planning and Research Promotion co-ordinates a programme for the development of innovative models in teaching, guidance, etc.[3].

[1] Cf. for example the overview in Jürgen Zabeck, Bernd Weibel and Wolfgang Müller, Die Berufsakademie Baden-Württemberg, Mannheim: Universität Mannheim, 1978.

[2] See the critical views in Johannes Wildt, Aspekte der Transformation des Projektstudienkonzepts unter den Bedingungen einer sich entwickelnden "staatlichen" Studienform, Bielefeld 1979, unpubl. manuscript; Hans-Werner Prahl, Hochschulprüfungen: Sinn oder Unsinn?, München: Kösel 1976; Michael Daxner and Jürgen Gries, eds., Recht und Ökonomie der Hochschulprüfungen, Osnabrück: Universität Osnabrück, 1978.

[3] Cf. Peisert and Framhein, op.cit., pp. 129-32.

The programmes at colleges are financed up to 50 per cent by the federal government and the other 50 per cent by the respective state government concerned. The Science Council promoted plans to establish short-cycle courses in universities, many of which were expected to develop new types of specialization[1].

The plans promoted by the Science Council met, however, with severe criticism. First of all, the Science Council and some other bodies proposed to establish courses leading to university degrees, somewhat parallel to state examinations, in order to offer alternatives for teacher training: for example, regional studies. Although some of these proposals have been put into practice, they were criticized because they put those choosing these new fields of study on unequal terms with those who had taken the traditional state examinations. The students taking the state examinations might also take up positions that the new Masters degree or diploma were aimed for, whereas those getting the new diploma or Masters were excluded from the teaching profession. It is therefore widely expected that these newly created fields will be shortlived unless the recruitment policy of public employers is to change. Second, the concept of short-cycle courses at universities also met with criticism. On the one hand, employers argued that there was no rationale in the employment system for the establishment of a third type of qualification in between the scholarly university graduates and the vocational orientation of those graduating from Fachhochschulen[2]. On the other hand, many reformists felt that these proposals were an effort to deprive some students of proper study for the sake of easier adjustments in the employment system[3].

As regards curricular reform, major emphasis was placed in the seventies on Praxisorientierung (Practice orientation), Berufsfeldorientierung (orientation towards fields of occupation), Berufsorientierung (orientation towards occupations) or similar newly created terms expressing the intention to reshape the way the future work of the graduates is taken into account in the study courses[4]. Such programmes included, for example, courses of information about careers, phases of occupational experience before graduation, the simulation of job tasks in courses, and also general changes in the core of knowledge in fields of study[5].

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[1] Wissenschaftsrat Empfehlungen zur, Differenzierung des Studienangebots, op. cit.

[2] Bundesvereinigung der Deutschen Arbeitgeberverbände, Fachhochschule - Kunststudiengänge, op. cit.

[3] Cf. for example "Vorschläge aus dem Elfenbeinturm", GEW Pressedienst, February 7, 1979.

[4] See Jörg Bürmann, Zehn Jahre praxisbezogene Studienreform im Spannungsfeld von "wissenschaftlichem Führungsanspruch" und "gesellschaftlicher Dienstleistungsfunktion", Hamburg: Arbeitsgemeinschaft für Hochschuldidaktik, 1977, (Blickpunkt Hochschuldidaktik, No. 46); Otto Herz, ed., Praxisbezug im Studium, Hamburg: Arbeitsgemeinschaft für Hochschuldidaktik 1975 (Blickpunkt Hochschuldidaktik, No. 35).

[5] See the overview in Ulrich Teichler, and Helmut Winkler, eds., Praxisorientierung des Studiums, Frankfurt and New York: Campus 1979.

The variety of terms indicates nothing but the divergent concepts. The approaches differ according to the socio-economic goals (adaptation to the existing conditions in the employment system or education for change), to the type and kind of courses considered suitable, the weight placed on the occupational orientation among the goals of higher education, and finally the application of these goals either to the total system of higher education or only to certain types of institutions or courses. Reformists emphasize practice orientation, both to occupations and social and political life, which affects equality of all institutional types of education, develops a new integration of work orientation with research orientation and stresses occupational change. Employers prefer the harmony of such educational goals with the work tasks in the occupation system and emphasize more strongly a vocational orientation of Fachhochschulen. Scholars in favour of a very diversified system consider frequently a strong occupational orientation basically to be solely a matter for the Fachhochschulen. An impressive number and variety of reforms have been carried out in this area, but they have not yet changed the dominant picture of higher education[1].

A second major response of curricular reforms to changing labour market prospects of graduates was the increased emphasis on flexibility[2]. This was sometimes understood to be included in concepts of orientation towards practice, etc., but often considered to be an alternative concept stressing basic knowledge and leaving a substantial part of occupational preparation to in-service training or further education. In general, the aims of providing a basis of competences useful in broader occupational fields and of promoting inclinations to be flexible to change were, although not undisputed, widely accepted in debates on curricula reforms and seem to have influenced many implemented reforms.

Intensive administrative efforts to push forward curricular reforms in higher education were made in the late seventies. On the basis of the Framework Act for Higher Education, a Study Reform Commission for general co-ordination of guidelines for reforms was established at the federal level in the summer of 1978;[3] in addition, such reform commissions had also been established at the federal level for single fields of study, as well as in some states. The commissions obviously emphasize very strongly the rôle that changing career prospects play, but it cannot yet be established how far-reaching the results of these commissions will be.

Efforts have been made to change the system of degrees but more or less without substantial success. During the last few years, courses have been established

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[1] Ulrich Teichler and Helmut Winkler, "Erfahrungen bei praxisorientierten Studienreformen," in Teichler and Winkler, eds., Praxisorientierung des Studiums, op. cit., pp. 548-59.

[2] Cf. for example Mertens, "Schlüsselqualifikationen", op. cit.; Bundesminister für Bildung und Wissenschaft, 22 Orientierungspunkte, op. cit.; Bundesvereinigung der Deutschen Arbeitgeberverbände, Fachhochschule - Kurzstudiengänge, op. cit., pp. 13-8.

[3] "Studienreform-Kommissionen nehmen Arbeit auf", Deutsche Universitätszeitung, No. 9, 1978, p. 275.

to integrate the two phases of teacher training and legal studies (the first in institutions of higher education, the second both on the job and in special seminaries) into one system, but these reforms have been renounced by the public employers in charge[1]. Also, proposals have been shelved to establish a general system of degrees granted by institutions of higher education which might be supplemented by separate state examinations instead of the existing alternatives between fields of studies mainly terminating in state examinations for college degrees.

As mentioned above, one of the strongest responses within the system of higher education to the changing career prospects, or to the public debates related to it, might have been the change of attitudes among students. There is general agreement among experts that a serious loss of motivation can be observed among students to take up the official courses offered. This has not just affected those who finally gave up the plan to enroll but also those who had enrolled.

One expert identified four typical patterns of attitudes which he called: "passivity, subjectivity, suffering and breaking out"[2]. According to his observations, in most cases students are not able to adopt such attitudes without obvious suffering. The author does not attribute all the observed changes solely to the changing perceptions of occupational prospects, but he considers this to be the strongest factor. Another expert emphasized difficulties of institutions of higher education to cope with this loss of relevance. In his view, the examination system adds considerably to these problems[3].

It might be appropriate to state that a certain loss of motivation and quality of studies in the process of expansion of higher education would not be considered harmful. This view certainly could be taken by those who are worried about "over-qualification". The change of attitudes among students in the Federal Republic of Germany, however, has been obviously very strong and this has led to widespread concern.

The reactions of the system of higher education to the changing labour market conditions for graduates are manifold. The views vary about how far-reaching the educational reforms are and to what extent they can be considered suitable to reduce discrepancies between the outcomes of higher education and the prevalent notions on requirements of the employment system. In any case, it is

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[1] See Wolfgang Fichten, Klaus Jäckel and Richard Stinshoft, eds., Projektstudium und Praxisbezug: Reformmodelle der Lehrer- und Juristenausbildung, Frankfurt and New York: Campus, 1978.

[2] Gerhard Portele, "Uber den Einfluss veränderter Berufsbedingungen auf Einstellungen und Handeln der Studenten", in U. Teichler, ed., Hochschule und Beruf op. cit., pp. 202-222; on this topic see also Dietrich Goldschmidt, "Studium wozu? 15 Punkte zum Wandel von Hochschulen und Studium in Beziehung zum Beschäftigungssystem," Neue Sammlung, Vol. 19, No. 3, 1979, pp. 299-309.

[3] Klaus Heipcke, "Bildungsprozesse in Hochschule und Beruf: Studien- und Berufsbiographien als Desiderat hochschuldidaktischer Forschung", in Teichler, ed., Hochschule und Beruf, op. cit., pp. 223-244.

obvious that the changes in higher education in response to the labour market do not create smooth relationships between higher education and the employment system. Some areas of higher education have reacted only marginally to the labour market, some educational reforms were made to trigger off substantial changes in the employment system, and some rely on corresponding reforms in the labour market or in the organization of work.

THE IMPACT ON THE RELATIONSHIPS BETWEEN HIGHER EDUCATION AND EMPLOYMENT

One of the most dramatic effects of the large supply of college graduates in the mid-seventies, accompanied by a general uncertainty as regards economic development, was no doubt the rapid spread of a very negative mood to the consequences of higher education expansion and a surprisingly irrational debate on the changing relationships between education and employment. This debate in the Federal Republic of Germany cannot just be dismissed as a short emotional interlude in the process of adjustment to social change, and it certainly revealed some widespread attitudes of the public about education.

Three catchphrases have turned out to be very popular: "inadequate employment" (inadäquater Einsatz) of graduates, "coupling or de-coupling" (Koppelung/Entkoppelung) of education and the employment system, and "competition for displacement" (Verdrängungswettbewerb) on the part of the college-trained manpower and other persons[1].

The term "inadequate employment" has been used frequently to describe the fate of the graduates who cannot obtain a job of a kind traditionally held by university graduates[2]. As mentioned in chapter 5, the term "academic proletariat" predicted in the early seventies a more sinister fate for these graduates. This more moderate expression counteracts arguments and findings according to which substitution processes in intermediate positions seem to be more frequent than an extreme discrepancy between the additional jobs for graduates on the one hand and the traditional positions they could expect on the other.

The expression "inadequate employment" is based first on the assumption that there are clear-cut, permanent notions about the appropriateness of the relation between education and employment. Second, it is argued that more or less all graduates in the past held "adequate" positions. Third, it assumes that the graduates in general want to find a privileged position. Fourth, it takes for granted the traditional strong impact of education on the jobs held and on the status generally conceived to be desirable, although the same persons frequently take an opposite view in using other phrases mentioned above. Fifth, it is based

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[1] See the critical comment by Ulrich Teichler, Der Wandel der Beziehungen von Bildungs- und Beschäftigungssystem und die Entwicklung der beruflich-sozialen Lebensperspektiven Jugendlicher, op. cit.

[2] See for example views expressed in Freie Universität Berlin, ed., Arbeitsmarkt für Hochschulabsolventen, op. cit.

on a model according to which the traditional positions will remain unchanged in case of a high supply of graduates and the "superfluous" graduates must be placed somewhere else. Sixth, it supposes a co-variation of the different indicators of "adequate" occupations such as income, security, prestige, power, interesting work, decision-making power in regard to organization of one's own work, other persons and materials, career opportunities, etc. The argument also has been frequently adressed to youth contesting that they would harm themselves if they should enroll in institutions of higher education.

The argument is based obviously on an exaggerated contrast between the traditional and the possible new positions of graduates, but it does not take into account the dynamics in the development of jobs, and it dismisses the fact that there are many jobs now which are quite demanding in terms of reasonable utilization of competences acquired at colleges although they might not offer the expected status. According to the argument of "inadequate employment", changes of anything else than the presumed clear-cut division between the traditional occupations of graduates and other "inadequate" positions are neither likely nor desirable.

The phrases "coupling" and "de-coupling" became popular during the mid-seventies in the political debates on trends and policies regarding the relationship between the education and employment system in general. "Coupling" refers to a state in which education will be geared completely to the qualification requirements of the employment system and the socio-economic status will be determined by educational achievement.

The political debate employing these phrases was related to academic controversies in the early seventies on the question of to what extent development in the employment system leads to corresponding changes in education or leaves room for alternative educational policies. It was also questioned to what extent requirements for education can be determined on the basis of analysing the development of the economy and the occupations[1].

In the political debates, the phrase "de-coupling" was used first of all in regard to the aims of learning, mostly with negative overtones. Employers' representatives, for example, blamed the proponents of educational reform for having "de-coupled" education from the needs of the economy[2]. Secondly, with regard to the relation between educational attainment and socio-economic status, "de-coupling" usually was referred to as a positive goal. According to these views,

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[1] See Armbruster et. al., Expansion und Innovation, op. cit.; Helgelheimer, "Bildungsbedarf und beruflicher Qualifikation," op. cit.; Inge Asendorf-Krings op. cit.; Egon Becker "Probleme der 'Berufsorientierung' des Hochschulstudiums," in G. Faltin and O. Herz., eds., Berufsforschung und Hochschuldidaktik I: Sondierung des Problems, Hamburg: Arbeitsgemeinschaft für Hochschuldidaktik, 1974, pp. 26-77.

[2] See for example statements in Die Berufsgesellschaft und ihre Bildung - Bilanz und Ausblick, Hamburg 1976 (Bergedorfer Gesbrächskreis zu Fragen der freien industriellen Gesellschaft, Protokoll No. 53).

graduates ought not necessarily to expect rewards for their educational accomplishments and employers ought not to rely on education in their recruitment and personnel policy. Many employers and politicians hoped that in this way the problems of the labour market for graduates could be solved [1], be it through an easier absorption of graduates or a decline in aspirations due to the uncertainty of reward. Many educators hoped that this would certainly free education from the pressures of selection and at the same time increase public support for education beyond the occupational requirements [2].

The debate on "coupling" and "de-coupling" made clear the difficulties in understanding the existing correlation between education and occupation being turned into an extreme alternative by those phrases of either a complete determination or a complete independence. The inconsistent demand to "couple" education and employment in terms of content and to "de-couple" in terms of status distribution indicates a widespread disapproval of the educational policy in favour of equality of opportunity. Education beyond economic needs was considered undesirable, and rewards for educational accomplishments seemed, according to these views, unnecessary. This debate underlines that the strong reliance of the public sector on educational credentials is often conceived to overshadow completely the development of higher education and the labour market of graduates.

The phrase "competition for displacement" gained popularity among otherwise very different groups hardly sharing any common outlook on matters of education and employment. According to this expression, those graduates not finding an appropriate occupation would finally climb down one step on the ladder of occupations and thus would force another person having been trained for this position to climb down the ladder too. In this way they claimed that persons not having graduated from colleges would be deprived of the chance to take over those positions they would have got in the event of a balanced labour market for college graduates [3].

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[1] For a more sophisticated position of this kind, see Eberhard Böning, "Die veränderte Rolle des Hochschulabsolventen," Deutsche Universitätszeitung, Nos. 17-18, 1976, pp. 466-71.

[2] See for example Helmut Becker, "Die Bildungsreform geht weiter," in H. Becker, et. al., op. cit., pp. 9-41. Cf. also Andreas Flitner, Missratener Fortschritt: Pädagogische Anmerkungen zur Bildungspolitik, München: Piper, 1977.

[3] See for example several statements in CDU: Zukunftschancen der jungeren Generation, op. cit.; Armin Hegelheimer, "Müssen Ausbildungs- und Beschäftigungssystem aufeinander abgestimmt sein?" In O. Peters and H. Gollhardt, eds., Jahrbuch für Wissenschaft, Ausbildung, Schule: WAS 77, Köln: Verlagsgesellschaft Schufernsehen, 1977, pp. 28-38; Peter Grottian, "Problemsösungsmodelle zur Bekämpfung der Arbeitsloseigkeit über eine finanzumverteilende Besoldungsstruktur," In Freie Universität Berlin, ed., Arbeitsmarkt für Hochschulabsolventen, op. cit., pp. 54-6.

The phrase was used for the first time in the mid-seventies by those who disapproved of the educational reforms of that period. According to this argument, the expansion of higher education was not only contrary to the interest of the economy ("oversupply") or useless for the increasing number of students ("inadequate employment"), but also was even harmful for the disadvantaged: It robbed them of the opportunities that they would otherwise have had!

It can be shown easily that the phrase is misleading, insofar as realities are concerned. For if the occupation structure remained constant as well as the correlation between educational level and occupational rank, a college graduate taking over a position held otherwise by a non-graduate would in all likelihood have obtained more or less the same position had the expansion of education not taken place. The major difference would be found in terms of a higher educational level, an "up-grading", but probably not in terms of worse job prospects. Thus, displacement as a consequence of educational expansion would only take place within one generation if the weight of credentials grew in general, and this could not be attributed to rationales of the employment system but was forced by the growing supply of graduates. A "displacement" process could be assumed between the generations, for the younger generation had a better chance to enroll at institutions of higher education. It can be noticed, however, that the higher the educational level, the more career patterns dominate, protecting the older working population from being replaced by younger people. Other criteria for occupational success, such as physical strength in the case of manual labour, are much more liable to cause problems for the older generation.

It might be justified to conclude that the popularity of the phrase, in the face of its doubtful basis as far as facts on the relationship between education and employment are concerned, all the more reveals a strong basis of underlying sentiments. Promotion of equality of opportunities through education might have been accepted in the Federal Republic of Germany in a period of growth which fostered hopes of upward mobility among many people. When these conditions were lacking, however, the legitimacy of social advancement through educational success seemed to be questioned. In addition, there seems to be - as the other phrases also indicate - a widespread disapproval of a general up-grading, i.e., a rise in the level of competences considered typically to be a prerequisite for taking over certain job tasks.

The use of these phrases tended to take for granted certain attitudes about a desirable relationship between higher education and employment instead of provoking a debate on what principles are desirable in this relationship. Thus, they contributed to the difficulties that the politicians, representatives of the employment system and the system of higher education faced in reconsidering the relationship between higher education and employment and eventually reshaping it.

Adaptation processes on the labour market for highly qualified manpower depended partly on the change of attitudes among graduates. The private employers, for example, seem to have changed their minds in the late seventies as regards the growing supply, as has been pointed out in chapter 5. They considered a higher intake of graduates likely, provided the graduates developed more moderate expectations.

In the Federal Republic of Germany, one representative survey on university students nearing completion of their studies was conducted in 1978. It was an inquiry into their attitudes towards the labour market and their future occupations[1]. Of these students, 46 per cent believed that most graduates do have to take up jobs not in tune with their expectations about the utilization of their competences and about an appropriate income. But only 20 per cent thought that they themselves would actually have to face such jobs. About half of the students had concrete aims as regards future employment, and only 11 per cent said that they had no idea whatsoever. Table 37 shows the overview of the sectors of future employment expected by the students in selected fields of study. The differences of categories chosen between official labour statistics and this survey do not permit any exact conclusion about deviations of the job expectations from job opportunities in the past. The data make clear, however, that the expectations do not just concentrate on a few, widely known areas of employment, but that the students' choices reflect very much the existing distribution of graduates in the employment system.

Most students believe that they cannot meet the high requirements demanded by the employment system. The students consider that especially the ability to work hard and in a disciplined manner, achievement orientation, specialized knowledge and occupational experience are the most highly regarded requirements, which they can hardly meet. They do not see any gap between the requirements and their competences, however, in case of ability to co-operate, and they consider their consciousness of the social implications of professional work to be more highly developed than employers require. Questioned about the aspects of occupations that they consider most important for themselves, the students emphasized especially good co-operation with colleagues, independent organization of one's own work, chances to develop and apply one's own ideas, and interesting and varied work. Some emphasis was placed on other working conditions and a comfortable life outside the working life. Income and opportunities to be promoted were rated somewhat important on average. Prestige in society was the only one among 18 items to be felt less important.

The students were also asked what they would do if they should face difficulties in realizing their occupational aims. The results, as shown in Table 38, suggest that the students were quite flexible as regards regional and horizontal mobility, further education and short-term hardships. But only very few of them were ready to accept permanently a lower level of job tasks and income; 18 per cent thought they might possibly choose "alternative" ways of living.

The results of this survey support to some extent each of the three most widespread views on the attitudes of the majority of students towards the labour market. According to the first view, most students harbour concepts of appropriate occupations following the traditional patterns of academic occupations. Findings about the diminishing interest of students in the study programmes of the colleges

[1] Heinz Griesbach, Jürgen Hinsenkamp and Reiner Reissert, op. cit.; Cf. also Ulrich Baumann and Franz Hamburger, "Studentische Berufsvorstellungen und Akademikerarbeitslosigkeit," Deutsche Universitätszeitung, No. 7, 1978, pp. 210-4; According to that survey, the outlook of students is much more pessimistic.

TABLE 37 Students Occupational Expectations - Survey 1978

"in which occupational sector do you wish to work?" (100 % = no. of students, who have either concrete or vague expectations, multiple responses possible)

Sector of employment desired	Humanities	Education	Social Sciences	Law	Economics	Medicine	Mechanical Engineering	Electrical Engineering	Civil Engineering
1. Private sector	8	3	4	37	73	8	78	70	79
2. Parties,associations	0	6	8	10	4	0	1	0	4
3. Public service	10	20	24	49	13	36	9	12	13
4. Colleges	11	13	12	3	5	3	11	13	13
5. Research	4	3	11	1	4	7	13	19	6
6. Schools	66	68	47	1	18	0	10	7	4
7. Churches	3	9	2	0	0	0	0	0	0
8. Self-employed	1	1	3	15	1	43	0	0	2
9. Don't know	0	1	0	1	0	1	0	1	0
10. Others	6	1	4	2	0	0	0	1	1

Source: Based on H. Griesbach, J. Hinsenkamp and R. Reissert, "Einstellungen von Studenten höherer Semester zu Beruf und Arbeitsmarkt", HIS Kurzinformationen, No. 5, August 1978, p. 11.

TABLE 38 Intended Alternative Strategies of Students Facing Difficulties to Realize their Occupational Goals - Survey 1978 (Percentage)

Rank	Alternative Strategy	very likely	likely	less likely	unlikely
1	I shall be prepared to be regionally mobile to some extent	33	47	13	6
2	I shall accept some financial losses in a transitory period in order to realize my goal of applying my knowledge	18	55	18	7
3	I shall try to increase my career opportunities by acquiring additional qualifications	27	42	19	10
4	I shall be prepared to remain unemployed up to half a year	15	44	28	15
5	I shall be prepared to take another alternative, but with equal responsibility and remuneration	12	42	30	16
6	I shall be prepared to go to a very remote place, if necessary	12	22	34	30
7	I shall try to find a position abroad	9	20	32	18
8	I am prepared to remain unemployed up to one year	7	22	34	35
9	I shall accept an occupation not related to my field if I can realize my financial expectations	5	22	45	28
10	I shall leave the traditional employment market and choose an alternative way of securing my livelihood	4	14	30	51
11	I shall be prepared to take up occupations in which I would face losses in terms of application of knowledge and remuneration	1	12	42	43

Source: Heinz Griesbach, Jürgen Hinsenkamp and Reissert, "Einstellungen von Studenten höherer Semester zu Beruf und Arbeitsmarkt," HIS Kurzinformationen, No. 5, 1978, p. 16. The researchers set the rank order on the basis of the total number of answers "very likely" and "likely".

might support this view, too. The second position suggests that students adapt their expectations to the changing market conditions. Among others, a large number of graduates who are not unemployed but do not find appropriate positions, reinforce this view. According to a third argument, students wish primarily to have interesting and intellectually challenging jobs, but accept also a certain loss of income and status. On the basis of not only this survey but also further available information, it is not possible to consider one of these views to be more plausible than the others.

Modifications in the relationship between higher education and employment in response to the large supply of graduates have to be sought primarily in the employment system. Three major types of changes could be expected, if we exclude for the moment changes in the organization of work and the work tasks:

(a) a reduced weight of credentials in determining the career in general,

(b) processes of vertical substitution, whereby the additional graduates take over positions previously held by non-graduates,

(c) a reduction in the advantages of college-trained manpower in terms of income (without any change in the relation of educational attainment and positions).

In the debates in the Federal Republic of Germany on the adjustment processes in the labour market to the rising supply of graduates, a clear-cut distinction according to the types of adjustment processes can seldom be found. There seems to be, however, a widespread belief that vertical substitution might be the most prevalent pattern.

Substitution processes are obviously much more frequent than experts tended to believe who warned about the danger of an academic proletariat. Most experts seem to agree today, however, that the prevailing trends of the labour market for graduates will not be sufficient to absorb the growing number of graduates without serious signs of friction. The private employers might tend to turn towards a more flexible practice of recruiting graduates, but there are doubts whether this will lead to a rapid increase of job openings for graduates, because there are counterbalancing forces such as the interests of persons in intermediate ranks and especially because, as some views predict, methods of rationalization to save labour costs reduce intermediate positions over-proportionally.

The public employers refused in the seventies to revamp the training and career system in such a way that educational level would have less impact on the career and that persons with a higher level of education could easily substitute those of a lower level. This became obvious in recent laws on civil servants[1] as well as in the process of establishing special Fachhochschulen for public administration, the capacity of which was controlled according to the predicted requirement for the corresponding career ladder. It has to be added here that the Constitutional guarantee on free choice of education has been interpreted up to now as the right of the qualified Abiturient to enroll at any field of study in a university, but not as the right for a secondary school leaver to enroll in Fachhochschulen.

Thus, the particularistic interests of the public employers to control the education of the newer generations in terms of numbers and content, combined with the interests of the civil servants on the semi-professional level, over-ruled the education and labour market policies of the federal and state governments[2]. There have been some measures to ease horizontal and vertical substitution to a certain extent[3], but in general there remained a fairly close relation between subject of training and occupational field. It was also true for the level of education and access to positions.

Therefore, it seems to be a doubt with a sound base when one asks if the expansion of the number of graduates will be accompanied by a corresponding

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[1] Cf. Bundesgesetzblatt, No. I, 1976,

[2] See Hans Brinckmann, Susanne Hackforth and Ulrich Teichler, op. cit.

[3] Measures to ease substitution rely on ordinances in some areas of the public services or will be taken on a case-to-case basis.

increase of flexibility of the employment system[1]. There have been increasing signs of counteracting measures; thus, many experts consider special measures to be necessary if frictions are to be avoided, be it through measures to increase flexibility or through special programmes for the employment of graduates[2].

Finally, income advantages of college graduates have been somewhat reduced by special wage increases for persons in lower ranks and due to substitution effects. However, there have not been any substantial changes in the pay-scale in general. A proposal made by a political scientist to slice off a few per cent of the income of higher civil servants and to take this amount of money for establishing new positions for graduates in the public sector[3] raised considerable interest in the debates on changing relations between higher education and employment, but it did not lead to any corresponding measures, except for a few voluntary initiatives[4]. Some action has been taken, however, to reduce the wages of highly qualified persons indirectly by means of providing positions on a part-time basis. For example, some states established quite a number of "two-thirds time" positions for teachers.

Summarizing the findings of this section, we might conclude that there are adjustment processes in the labour market towards the new pattern of supply. However, this again does not lead to the feeling of a perfect "match".

THE IMPACT ON WORK

As the high supply of graduates has not been neutralized completely by changes in enrolment, structure of education, curricula, or adjustment processes in the labour market, we may assume that the supply creates a pressure for change in the job rôles and even in the organization of work.

Several research projects raised the question to what extent the supply affects the work of the graduates, as well as that of non-graduates. A few surveys concluded that many graduates were not only absorbed into positions previously held by non-graduates but in many cases took over tasks requiring their level

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[1] Cf. Friedemann Stooss, "Arbeitsmarkt und Berufsverlauf von Hochschulabsolventen," in U. Teichler, ed., Hochschule und Beruf op. cit., pp. 40-62.

[2] See the proposals in Freie Universität Berlin, op. cit., Mertens, "Akademikerperspektiven - Schon wieder eine Tendenzwende?" op. cit.; Fritz W. Scharpf, Sabine Gensior and Jobst Fiedler, Projekt: Beschäftigungsmöglichkeiten für arbeitslose Hochschulabsolventen in Berlin (West), Berlin: Wissenschaftszentrum Berlin, Internationales Institut für Management und Verwaltung, 1978.

[3] Grottian, op. cit.

[4] The Hochschulverband called upon college teachers to provide 1 per cent of their salary for a fund to support unemployed scholars. See "Hochschulverbandstag verabschiedet Hilfsfonds für den wissenschaftlichen Nachwuchs," Mitteilungen des Hochschulverbandes, Vol. 27, No. 3, 1979, p. 116.

of training[1]. The results of other research projects showed that the personnel policy of enterprises is to a very large extent responsive to the availability of manpower[2]. Furthermore, many surveys showed large margins of potential for substitution, both horizontal and vertical[3]. Finally, one research project came to the conclusion that the pattern of co-operation within the enterprises had changed strongly as a consequence of an increased percentage of qualified manpower[4]. Such findings might support the view that the increased number of graduates affects the work itself, but there is very little information available which might help us establish the extent to which such impluses from higher education shape the rôles of the college-trained manpower as well as the organization of work in general.

Five different kinds of such changes in work in response to the larger supply may be mentioned:

1. The extension of the number of existing job-rôles for highly qualified manpower: the most obvious example of this kind was the increase of positions for school teachers. The large supply of graduates, their demand to be employed and the problems in the schools under the existing pupil-teacher ratios obviously have led the state government to employ more teachers than otherwise would have been expected[5]. In this way, some improvement was possible in schools, and certainly deliberations to cut back the number of teachers came to a halt for the time being.

2. Many proposals have been made to utilize the additional supply of graduates for new tasks which have been generally considered to be important, but were neglected previously. The Federal Employment Agency published, in the early seventies, a long list of possible improvements, such as innovative effects through research, increase in the quality of social work, health, press, preparation of political decision-making, counselling services, military, police, city planning, security of the work place, etc.[6]. The forecast by Prognos,

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[1] Cf. Hartung, Nuthmann and Winterhager, op. cit.; see also the overview in Manfred Kaiser, "Bildungsexpansion und Akademikerbeschäftigung: Zu einer 'The orie der Akademisierung des Beschäftigungssystems'," Mitteilungen aus der Arbeitsmarkt- und Berufsforschung, Vol. 10, No. 2, 1977, pp. 270-90; Kaiser, "Zur Flexibilität von Hochschulausbildungen," op. cit.

[2] Kammerer, Lutz and Number, op. cit.; cf. also the overview in Reinhard Nuthmann, "Bildungsexpansion, Berufs- und Qualifikationsentwicklung," in Teichler, ed., Hochschule und Beruf: Problemlage und Aufgaben der Forschung, op. cit. pp. 9-39.

[3] See the overviews in Kaiser, "Zur Flexibilität von Hochschulausbildungen", op. cit.; Busch et al., op. cit.

[4] Werner Fricke: Arbeitsorganisation und Qualifikation: Ein industriesoziologischer Beitrag zur Humanisierung der Arbeit, Bonn-Bad Godesberg: Verlag Neue Gesellschaft, 1975.

[5] This was pointed out by Erich Frister, Chairman of the teachers union GEW.

[6] "Soll die Bildungsexpansion so weiter gehen?" Analysen, Vol. 2, Nos. 8-9, 1972, p. 21.

which has been mentioned earlier, included suggestions for establishing new positions for developing aid, technology, social work, city planning, etc.[1]. It was generally accepted that there were "requirements" which had not been transformed into a "demand" on the labour market. In using caution with such views, the phrase has been employed sometimes: "Demand is what we can pay for"[2]. For some years around the mid-seventies, the government argued that it was impossible to finance such programmes. Therefore, it is understandable that the programme mentioned above to reduce the remuneration of higher civil servants in order to establish new positions, attracted a great deal of attention[3]. In recent years arguments comparing the costs of establishing new positions to those of keeping persons unemployed have changed attitudes to some extent. One suggestion was put forward in 1979 to establish a programme for innovation in small- and medium- sized industries. According to this programme new positions for highly-qualified manpower in science and technology ought to be paid predominantly by public funds over a limited time span. The programme stirred hopes of both creating technological innovation and establishing new positions for graduates[4].

Special programmes for creating new positions for college graduates met many criticisms, too. For example, some trade union representatives argued that these measures would serve, if they are not incorporated into general programmes for full employment, to reduce what are only minor problems of the privileged few[5]. Trade unions also argued that many special programmes offering lower remuneration and job security would lead to a cut-back of both income and rights of employees in general. There is also criticism on the costs necessary for the realization of the programmes, and their utility. Many graduates getting jobs within the framework of special programmes are quite unhappy about the special status and the tasks involved.

3. Jobs previously considered to be suitable for non-graduates might change their characteristics after having been taken over by university graduates. There are obvious examples not only in cases of the up-grading of the training, for example in social work and pre-school education, but also in occupational fields less structured by credentials, such as the press and supportive staff of politicians. It is generally assumed that many occupational rôles previously assigned to persons with intermediate education are liable to substantial changes on the part of the persons taking over the position, because many of these rôles are only structured to a limited extent by more or less permanent regulations,

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[1] Bierter et al., op. cit.

[2] Schlaffke, "Berufschancen für Akademiker - Forderungen und Erwartungen aus der Sicht der Wirtschaft," op. cit., p. 192.

[3] Grottian, op. cit.

[4] Scharpf, Gensior and Fiedler, op. cit.

[5] For example Herbert Bienk, "Anspruch auf Bildung und der Arbeitsmarkt (Zusammenfassung)," In Freie Universität Berlin, ed., Arbeitsmarkt für Hochschulabsolventen, op. cit., pp. 31-5.

routine organization and continuous controls[1]. There are some worries among employers that in many cases the employment of college graduates would result in less efficiency rather than useful innovation[2]. Lack of data does not permit us to estimate the extent to which the take-over of positions by graduates proves innovative, but known cases might justify the view that there are ample opportunities of this kind.

4. The large supply of college-trained labour might change the division of labour in the long run. When graduates actively shape their work rôles, previously considered not to require college education, such a change will have, in many cases, influence on other rôles too, be it in new tasks partly taken over by others. or new divisions of job tasks[3]. Also it is known that employers' programmes to rationalize work take into account, to some extent, the availability or scarcity of skills, as well as the motivation of the work force. Therefore, some long-term effects can be expected. Again, lack of information prevents us from giving an account of the range of such changes.

It is also difficult to establish whether these changes will have the overall effect of supporting vertical or horizontal division of labour more strongly. One research group points out that changes can be expected in both directions[4]. On the one hand, a laboratory assistant might be deprived of the more interesting parts of his work if an additional college graduate were to be employed; on the other hand, the employment of more qualified persons in administration might have the effect of wider distribution of responsibilities.

5. Finally, the large supply of college-trained labour might have an effect on the interchange within the employment system, i.e., the system of organized gainful work and other spheres of socially relevant work. The increasing number of college-trained persons has an effect on the patterns of non-paid activities, for example the extension of political and cultural activities, new types of counselling services, voluntary social work, experiments in alternative living modes and new leisure activities. These changes in non-paid activities obviously have very divergent feedback effects on the employment system, such as increased interest in part-time work, reduction of paid jobs because of the transfer of the work from paid work to voluntary work, reduced motivation for self-realization in the work rôle, newly remunerated jobs in the service sector and the establishment of positions in the public administration. There is a

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[1] According to a project "Handlungsspielräume in industriellen Organisationen" under investigation by Margit Osterloh, Max-Planck-Institute für Bildungsforschung, Berlin.

[2] Cf. the arguments of Schlaffke in Deutscher Bundestag, Anhörung von Sachverständigen zum Thema "Bildungs- und Beschäftigungssystem", op. cit.

[3] Cf. the arguments in Hartung and Nuthmann, Status- und Rekrutierungsprobleme als Folgen der Expansion des Bildungssystems, op. cit.

[4] Manpower-Gruppe, Projekt: "Veränderungen von Berufsrollen und Berufsperspektiven von Hochschulabsolventen", Berlin: Max-Planck-Institut für Bildungsforschung, 1979, mimeogr.

growing awareness of changes of this kind, but it is difficult to predict the impact that these developments would have on the employment of college-trained manpower.

In the public debates held in the Federal Republic of Germany on the possible forms of utilization of a large supply of college graduates, there is a widespread belief that positions in the public sector have to play a major rôle. Many proposals have been made in this direction. It is obvious, however, that there are many alternative possibilities. For example, there could be legal decisions or state activities on employment of college-trained manpower in the private sector, such as laws regulating the medical service system in enterprises, anti-pollution measures, etc. Giving subsidies may create more new jobs. The utilization of college-trained manpower itself is also changing, as has been pointed out by examples shown above, due to the deliberations of private employers on how to make the most efficient use of the skills of the employed and due to the activities of the graduates themselves.

In summary, one has to note that the effects of the large supply of highly-qualified manpower on work are clearly visible in the case of actions by public employers to increase the number of positions for graduates and the special programmes to induce unemployed college-trained labour to utilize their skills. Information is lacking on the gradual changes in the job rôles, utilization of the abilities of additional graduates employed in the private sector and the interchange between work in the employment system and non-paid work. The lack of information is certainly detrimental for a labour market policy which does not only take into account visible demand and supply of the labour market, but also the potential utility of "mismatches".

CHAPTER 9

FUTURE TASKS OF HIGHER EDUCATION POLICY AND PLANNING

SUMMARY OF THE POST-WAR DEVELOPMENT

In the Federal Republic of Germany far-reaching changes have taken place since the late sixties. After years of debate on fundamental issues, major reform experiments and related experiences, it is now probably the right time to evaluate these experiences and discuss new goals.

In the fifties, the opinion was often heard that the fundamentals of the tradition of German higher education should be restored. In the early sixties, many people believed that an expansion policy without any substantial structural reforms was adequate to cope with the future development. The debates on the rôle higher education plays in economic growth and equal opportunity, however, reached the Federal Republic of Germany at a time of crisis as regards the goals of higher education. In spite of the diversity of views, at least a consensus was reached in the late sixties that far-reaching reforms were indispensable.

Due to their rather specific traditions, universities in the Federal Republic of Germany could not easily adapt to their changing rôle as regards the employment system. The research orientation made it difficult for them to prepare the students to take over positions other than those traditionally held by university graduates. As the quality of universities had been kept more or less even, all of them - not just the less prestigious ones - were challenged by the increasing numbers of students. Finally, the close link between fields of study chosen and career was liable to cause anxiety about the changing relationship between higher education and employment.

Under these conditions, higher education policy in the late sixties and early seventies did not strive to overcome traditions and to adapt to models of a diversified system widely considered to be appropriate for a more modern system of higher education. A major reason for not following such a route might have been the fact that the contribution of higher education to economic growth and equality of opportunity was not necessarily the main aim of higher education reforms. Most employers did not see any urgent need for expansion, and students criticized an economy-oriented higher education policy. Equality of opportunity was highly regarded, but no substantial changes in admissions, structure or curricula were

made to support this goal. More important, however, was the widespread belief that there were traditional characteristics of German higher education worth being retained and transformed by genuine reforms.

In the Federal Republic of Germany these traditional characteristics shaped the two major fields of higher education reforms in the seventies:

- In the process of expansion of higher education, a commonness of goals for institutions of higher education as well as fairly even standards were to be retained. This is clear from the Framework Act for Higher Education, which prescribes research-oriented education for all institutions of higher education and the fact that the idea of setting up comprehensive universities became very popular for a couple of years.
- The extension of participatory right for junior faculty, students and other staff reflected, in part, the traditional goals of the community of scholars and students and the specific conditions of university autonomy in this country.

Under the given conditions, it is hardly suprising that the reforms provoked heated debates. In addition, the slackening of the economy hit the country in 1973 just at an important stage in the implementation of these reforms. Growing concern about the budget and about the uncertain future reduced the readiness of reforms in general, at a time, when, due to the rapid expansion of higher education in previous years, many graduates had to assume types of occupations previously considered to be the preserve of non-graduates. Thus, this transformation of the labour market for college graduates took place under less favourable conditions than for example in the cases of Sweden and Japan some years before.

CHANGE IN THE INTERNATIONAL MOOD

Debates on higher education and the labour market have probably been more turbulent in the Federal Republic of Germany during the last few years than in many other countries. They were, however, far from being unique. There was a change in the international attitude from high expectations to desperation as far as education was concerned. In this connection, four aspects should be mentioned:

First, hopes grew dim that economic and social development might be spurred by the expansion of education. Instead it became fashionable to talk about "mismatch" between higher education and the employment system, "academic proletariat" and "over-education".

Secondly, hopes had been widespread for some years that it would be possible to reduce inequality in education due to social and regional background, race and sex. These hopes gave way to views that education was powerless to counterbalance such background factors.

Thirdly, the promotion of equality of opportunity was based on the assumption that education plays an important rôle in determining the socio-economic status. This view was to be replaced more and more by the belief that education was not an important independent factor.

Finally the rewards for credentials had been considered desirable for many years because this helped to overcome traditional privileges and to offer a fair chance. In recent years, however, it has become popular to point at the negative consequences of "credentialism": severe competition in the education system, mismatches in the labour market, unjustifiable privileges for the educated, "displacement" of those not having reached higher levels of education.

The change of mood as regards the education system was quite substantial, and was even stronger in the case of higher education, for higher education was in the foreground of considerations about education and economic growth. In addition, this sector is very expensive. The change of mood was also reinforced by a sense of crisis as regards knowledge and sciences: Doubts grew about a continuous progress in living conditions in the process of technological advancement, about the importance of research for political decision-making and about the wisdom of scholars.

In the last few years, however, alarmist attitudes began to give way to more moderate views; this holds true also for the international scene. Some indicators of this new trend can be observed in the Federal Republic of Germany since about 1976. There are several factors involved:

First, recent observations make clear that some of these alarmist views were not soundly based on facts. Also, the growing supply of college graduates did not cause frictions to the extent anticipated.

Secondly, it also became clear that many arguments about the detrimental effects of education were misleading. It might be fashionable, for example, to applaud the rôle of credentials in the case of undersupply of graduates and criticize credentialism when there is an oversupply, but it is preferable to weigh merits and demerits from a broader perspective.

Thirdly, in the last few years it became obvious that the alarmist views on education might produce additional, detrimental changes. For example, the arguments that the expansion of higher education is superfluous, dangerous and harmful for the graduates, do not only - if at all - lead to the desired effects of preventing some youth from enrolling in college, but also discourage those already enrolled and thereby undermine the quality of higher education in general. After euphoria and then desperation, what is the next stage in the development of the international attitude?

PROBLEMS OF POLITICIANS, PLANNERS AND SCHOLARS IN COPING WITH THE PRESENT MOOD

One could argue that the recent, fairly neutral attitude to education is favourable for the politicians, planners and scholars involved, for it offers the opportunity to understand the real situation in depth and to strive for realistic goals.

However, one cannot but argue instead that many experts involved seem to suffer from loss of orientation. After the loss of simplistic views, the known inter-relationships seem to be extremely complex and difficult to understand. Major paradigms have neutralized each other. As a result, one can neither promise a bright future nor even have the possibility anymore to find an emergency solution.

However, this loss of direction is not unique to politicians, planners and scholars in the field of education only. Doubts grew in general about the power of planning The increase in research on "implementation" is an obvious indicator. It might be appropriate under these conditions to set moderate goals for higher education planning, for it seems impossible to retain the attractiveness of previous plans based on simplicity.

NEEDS FOR INNOVATION AND THE TASKS OF HIGHER EDUCATION PLANNING IN THE FEDERAL REPUBLIC OF GERMANY

If one takes basically for granted the major decisions in higher education policy and planning in the Federal Republic of Germany in the seventies, but also takes into account the recent experiences, it may be appropriate to take seriously the following tasks in the near future.

First, reforms of higher education must be based on a more solid basis of information on the relationships between curricula and work tasks. There is a vast lack of information and research in this field will have to be given priority in the near future.

Secondly, higher education planning has to foster most of all the ability to learn on the part of the graduates, as well as the system of higher education in general. It is almost certain that the present activities for educational reform in the Federal Republic of Germany cannot result in any concrete programmes which will be convincing and acceptable for all groups involved, for the goals and concepts are divergent and the future developments too uncertain to permit the evolution of a broader consensus. It is necessary, however, to pave the way for reforms which increase the awareness of the knowledge required and the opportunities for innovation. Also, the students have to be confronted with the problems of their possible future jobs at quite an early stage in their studies.

Thirdly, the individual institutions of higher education should be given more freedom to develop new curricula. At present, curricular reforms in the Federal Republic of Germany are discouraged by the fact that any experiment is under pressure to prove quickly that it is equivalent to traditional courses.

Fourthly, the universities ought to introduce structured programmes for graduate studies. It is impossible to guarantee a good training for graduates in a theoretically open course system if more and more courses are strongly geared towards undergraduate curricula.

Fifthly, institutions of higher education have to take into account in their curricula the occupational prospects of graduates for intermediate positions. If students

are not prepared to take over corresponding job tasks and to introduce innovations in such areas, the expansion of higher education will continue to be viewed as a mismatch in general and not as an opportunity for innovation.

Further, an occupational orientation of higher education is reasonable in the sense of helping students to anticipate their future tasks. Under the present conditions of a large supply of graduates, however, the institutions of higher education have the opportunity to overcome narrow concepts about qualifications and thereby to foster social skills and to prepare for broader spheres of life.

Finally, higher education planning has to develop quite soon programmes on the tasks of institutions of higher education after the peak of the demographic curve. Increasing activities for adults might be insufficient to avoid a major crisis which would affect also the traditional functions of higher education.

The strongest criticism in the Federal Republic of Germany on the development of higher education in the last decade has been based on the belief that the gap between higher education and the world of work has become wider. Therefore, many reform proposals now suggest to counteract the secular trend of the separation of education from work. Proposals, for example, to foster social skills, to increase the orientation towards practice and to develop a system of life-long learning are in favour of a closer relationship between the process of learning and its application. Given these facts, it might be necessary to counteract an extreme swing of the pendulum: to establish a creative relationship between higher education and work would avoid both an "ivory tower" situation as well as the simple adaptation to the perceived needs.

The final proposal should be made: All the students should be trained to develop a profound understanding of the relationship between higher education and work. As experience has shown, it is not possible to guarantee adequate relationships on the basis of grand plans imposed from above. Instead, the development of higher education depends to a large extent on the perception and actions of all those involved, on continuous processes of reforms and on the ability of graduates to comprehend the relationships between higher education and work. No matter whether one looks at the policy of professional organizations, planning bodies in charge of science policy or surveys on college graduates, it is obvious that most people have not been prepared sufficiently for the important rôle that they will play in shaping the relationships between higher education and work. Therefore, the most important task of higher education policy must be to qualify all people involved to participate consciously in a continuous process of higher educational reform.

CHAPTER 10

SOME IMPLICATIONS FOR DEVELOPING COUNTRIES

The foregoing chapters give an account of the problems that the Federal Republic of Germany is facing in building up a relationship between higher education and employment, and the present state of such a relationship. As mentioned before, the Federal Republic of Germany has developed an interesting mix between market-oriented and planned relationships of higher education and employment. The dominant political approach is neither to submit adjustment processes to market forces alone, nor to choose a certain consistent philosophy of higher education planning, but rather to seek for a compromise.

The political institutions and planning agencies in the Federal Republic of Germany face stronger conflicts between a manpower approach and social demand approach in formulating policies for higher education than in many other countries. This is so because the Constitution guarantees open access to higher education for qualified applicants; at the same time the government is obliged to shape higher education according to the needs of the labour market and to provide employment for the graduates. Most of the developing countries are also seeking such a mechanism. The planned economies seek to relate development of education with the employability, especially at the higher level; but, due to various factors, especially the uncertainty of the economy, natural disasters, absence of precise tools for estimating employment and social pressure for higher education, attempts to achieve a perfect match between demand and supply cannot meet with complete success. In countries where planning is not practised, higher education develops independent of the needs of the economy, resulting in problems of scarcity of qualified manpower in certain cases and unemployment or underemployment of graduates in other cases. Few attempts are noted where reconciliation is made between demand and supply.

The developing countries, which are concerned with the problem of employment of graduates on the one hand and meeting the economic needs for qualified manpower on the other, also face the conflicting situation of meeting both the social demand for education and the manpower demand of the economy. The difficulties in reconciling the two approaches have made researchers in developing countries explore various alternatives to develop an adjustment mechanism. The research projects entitled "Graduate Employment and Admissions Policy in Higher Ed-

ucation"[1] and "Education and Work" undertaken by the International Institute for Educational Planning, as well as the ILO World Employment Programme, and research on education and employment by the Institute for Development Studies in Sussex, United Kingdom, focus on this adjustment mechanism.

Insofar as this issue is concerned, a study on the changing relationship between higher education and employment in an industrialized country like the Federal Republic of Germany has the potential for increasing the knowledge-base for planners and decision-makers in developing countries. The present study is a descriptive account of the problem of the relationship between higher education and employment in the Federal Republic of Germany, which starts with a description of the structure of the economy, the higher education system and the labour market and the various debates on this relationship, followed by a description of the selected manpower forecasts, the process of transfer from higher education to employment and a description of the impact of the linkage between higher education and employment on manpower planning, curricular development and students' attitudes. In the present chapter, we shall discuss the similarity, or the absence of it, in the state of the relationship with that of some developing countries. To do so, we shall begin with the underlying assumptions of the study, as given in chapter 2.

All these underlying assumptions and their contradictions could be valid for developing countries as well: Firstly, because the economic and educational policy of a developing country has very often been unrelated and an "over-supply" of graduates has not created much of a problem in the long run and they

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[1] The following studies have been conducted within the framework of this IIEP research project :

B. C. Sanyal and El-Sammani A. Yacoub, Higher Education and Employment in the Sudan, Paris, IIEP, 1975.

B. C. Sanyal, J. Case, et al., Higher Education and the Labour Market in Zambia - Expectations and Performance, Paris, Unesco and the University of Zambia, 1976.

B. C. Sanyal and M. J. Kinunda, Higher Education for Self-Reliance - the Tanzanian Experience, Paris, IIEP, 1978.

B. C. Sanyal and A. Jozefowicz (eds.), Graduate Employment and the Planning of Higher Education in Poland, Paris, IIEP, 1978.

B. C. Sanyal, W. S. Perfecto and A. Arcelo, Higher Education and the Labour Market in the Philippines, New Delhi, Wiley Eastern Ltd. and the Unesco Press, 1981.

B. C. Sanyal, A. A. El-Koussy, M. Khairy Harby, I. Balbaa, R. Noonan, L. Yaici, University Education and the Labour Market in the Arab Republic of Egypt, Pergamon Press, 1982.

B. C. Sanyal, P. K. Bose and S. P. Mukherjee, Graduate Employment and Higher Education in West Bengal, India (to be published in 1982).

B. C. Sanyal, Shamsul Huq, R. Islam et al., Higher Education and Employment in Bangladesh, (to be published in 1982).

N. B. These studies will be referred to in the remainder of this chapter as "IIEP studies on the Sudan, Zambia, Tanzania, Philippines or Egypt, etc.".

TABLE 39 The Distribution of Employed Graduates by the Number of Months Unemployed after Actively Seeking for a Job, Philippines

Months waiting	Percentage of graduates
0 - 2	55
3 - 6	22
7 - 12	12
13 - 24	7
25 plus	4
	100

Source: IIEP study on the Philippines.

TABLE 40 Waiting Period between Graduation and First Job, Sudan

Waiting period	Engineer	Social scientist	Lawyer
Less than 6 months	96	77	10
6 months - 12 months	4	14	60
1 year or over	0	9	30

Source: IIEP study on the Sudan.

have been absorbed into the labour market. In fact, what appears to be an unemployment problem among university graduates is often to a larger extent a "job searching process"[1]. Although the evidence is too mixed for a general conclusion to emerge, the IIEP studies on some selected developing countries support this statement (see Tables 39 and 40).

Secondly, as the affluence of an industrial society permits more readily taking into account of other goals than economic growth, the practice of developing countries to treat education as a "consumption good", rather than something which offered material benefits for a long time in the past, permits the same phenomenon to prevail in developing countries as well[2].

[1] G. Psacharopoulos and B. C. Sanyal, Higher Education and Employment: the IIEP Experience in Five LDC's, IIEP Fundamentals Series, Paris, 1981

[2] IIEP studies on Egypt and West Bengal.

Thirdly, as in the Federal Republic of Germany, the developing countries also have limited capabilities for employing a distinct and clearcut policy for substantial change in the relationship between education and employment, not only because of the complexity of the socio-political system but also due to lack of information on the economy, the labour market and the education system.

So, the assumptions underlying the present case study are valid and applicable more or less to developing countries also. This is mentioned to reinforce the usefulness of this study on the Federal Republic of Germany for planners and researchers of developing countries. However, it is the socio-economic and political context which makes such research more country specific and also time-bound. No research results in such a complex field as higher education and employment are universal and permanent in nature. This is why we deal in the following sections with the characteristics of the Federal Republic of Germany in a comparative way with those of other countries in order that specific conclusions may be drawn.

THE EDUCATION AND OCCUPATION SYSTEM: STRUCTURES AND QUANTITATIVE DEVELOPMENT

The Federal Republic of Germany is an industrialized developed country with a GNP per capita of US$6,830 (in 1977) as compared with $160 for India, $330 for the Sudan, $210 for Tanzania and $460 for the Philippines, for example. This shows the riches of the country and its economic well-being. It had 61.6 million inhabitants (1977) with a negligible population growth rate of 0.2 per cent per year compared with 2.1 per cent for India, 2.6 per cent for the Sudan, 3.0 per cent for Tanzania and 2.7 per cent for the Philippines[1]. The percentage of foreigners in the country was then of the order of 6 per cent. The country did not experience its "baby boom" until the sixties, but in 1977 the number of births per thousand inhabitants was the lowest in the world (9.7 per cent). This had important consequences on the development of education; the most important is that the number of youth seeking work after completing education is expected to be highest in the eighties, when it is feared the economy will have a slow growth. In developing countries, such fluctuations in the population structure are not foreseen in the next decade or so.

In the Federal Republic of Germany the percentage of the labour force in agriculture and forestry decreased from 24.6 per cent in 1950 to 6 per cent in 1977. In most developing countries this percentage is much higher. Table 41 shows the distribution of the labour force in different economic activities compared with the Federal Republic of Germany in 1977 or the latest year available.

On the assumption that economic activities influence needs for educated manpower, such a distribution of the labour force sets the preconditions for the development of education. As such the educational structure of the labour force in developing countries should be different from that prevailing in the Federal Republic of Germany.

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[1] World Bank Atlas, 1979.

TABLE 41 Distribution of the Labour Force in different Economic Activities

Country	Agriculture, forestry	Production	Trade, transportation	Services	Government and private households
Federal Republic of Germany	6.0	46.0	17.4	17.3	13.3
India	72.6	10.7	7.3	1.0	8.4
Egypt	44.6	17.8	14.1	1.7	21.8
Philippines	51.3	14.1	15.3	19.3	
Sudan	68.5	6.3	8.3	16.9	
Tanzania[1]	27.6	28.3	18.4	25.6	

[1] Does not include subsistence sector.

Source: Yearbook of Labour Statistics, ILO, Geneva, 1979.

The important rôle of the production sector in the Federal Republic of Germany has sustained a strong vocational orientation of the education system. However the developing countries mentioned above have an increased number of workers in the primary and tertiary sectors. Due to lack of industrialization and lack of vocational orientation of the education system, the share of the labour force in the production sector is small. The majority of the qualified manpower are absorbed in the tertiary sector; a sector which does not appear to need much vocational orientation, especially in the context of a developing country.

As regards unemployment, however, the situation is not so different in the Federal Republic of Germany to that in certain developing countries, as will be seen from Table 42.

TABLE 42 Percentage of Unemployed Labour Force, by Country

Country	Percentage unemployed
Federal Republic of Germany	3.8
India	5.1
Philippines	5.0
Egypt	3.1
Sudan	6.0
Tanzania	-

Source: ILO Labour Statistics 1978/79; Bundesanstalt für Arbeit, Nürnberg, 1978.

In the Federal Republic of Germany, the occupational statistics indicate that in categories where highly qualified people are needed the percentage of workers has increased over time, indicating that the qualification level of the labour force has increased substantially (see Chapter 3, Table 4). In developing countries such improvement has been extremely modest, as is noted in the case of Egypt given in Table 43.

TABLE 43 The Changing Educational Composition of the Egyptian Labour Force, 1968 and 1977 (percentage)

Educational level	1968	1977
Illiterate	60.8	52.5
Read and write	27.8	26.3
Below secondary general	3.0	4.4
Secondary general	5.0	9.2
Above secondary general, but below university degree	0.5	2.3
University degree plus	2.8	5.2

Source: IIEP study on Egypt.

TABLE 44 Percentage of Females in the Labour Force

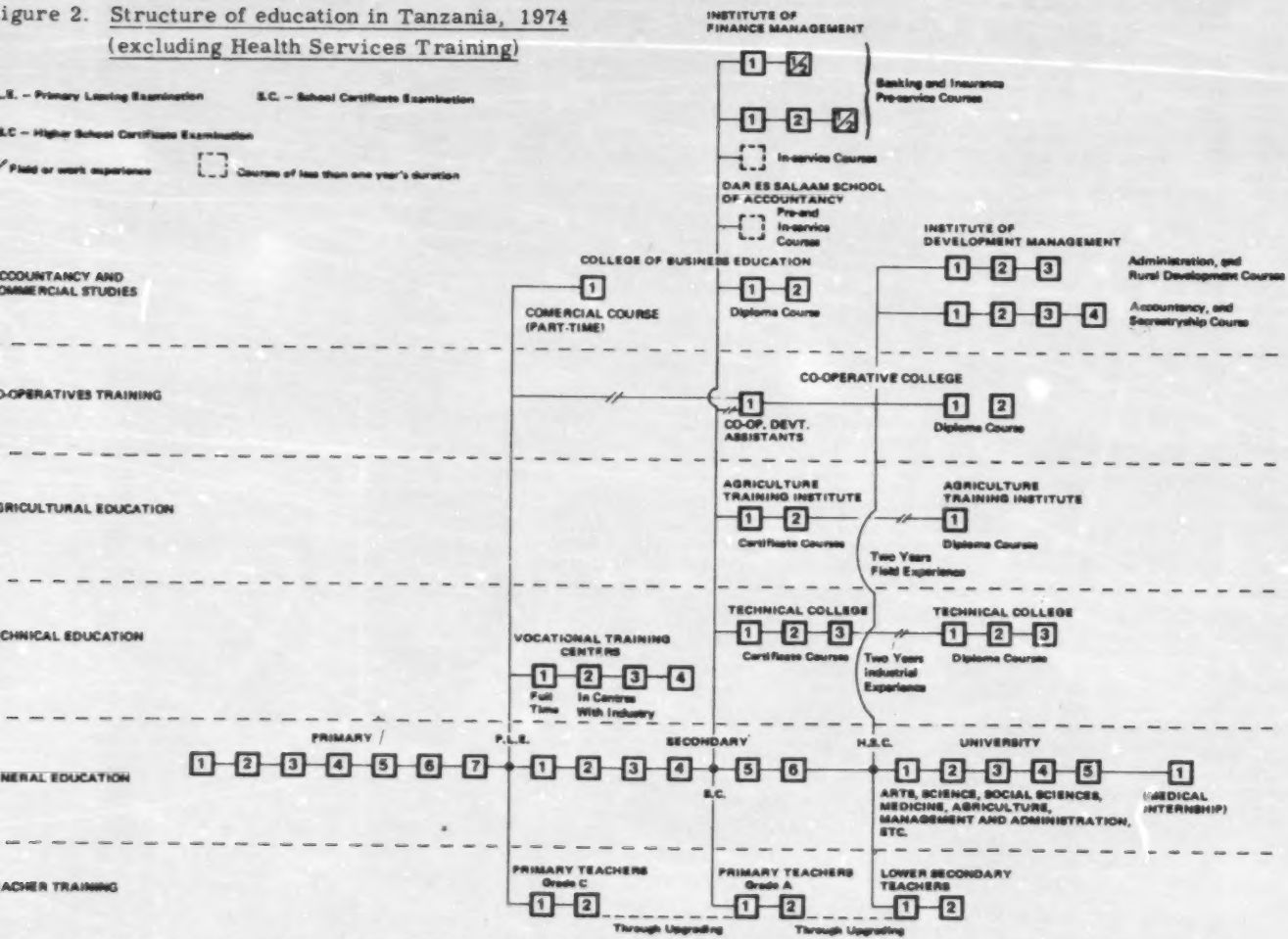
Country	Percentage
Federal Republic of Germany	35-36
India	17
Egypt	8
Philippines	35
Sudan	18.4

As shown in Table 44, in the Federal Republic of Germany the percentage of females in the labour force is much higher than in developing countries, except in a few countries like the Philippines.

Analysis of the educational structure of the Federal Republic of Germany would reveal segmentation of the student population at a very early stage into three categories: (1) those who will go to the Hauptschule , becoming skilled or semi-skilled workers; (2) those who will go to the Realschule and end up with intermediate positions in the occupational hierarchy; and (3) those who will go to the "Gymnasium", the academic track of secondary schools, typically preparing students for university education. However, as has been mentioned, several reforms have "softened" this segmentation by establishing a variety of second routes with horizontal linking between the types of schools.

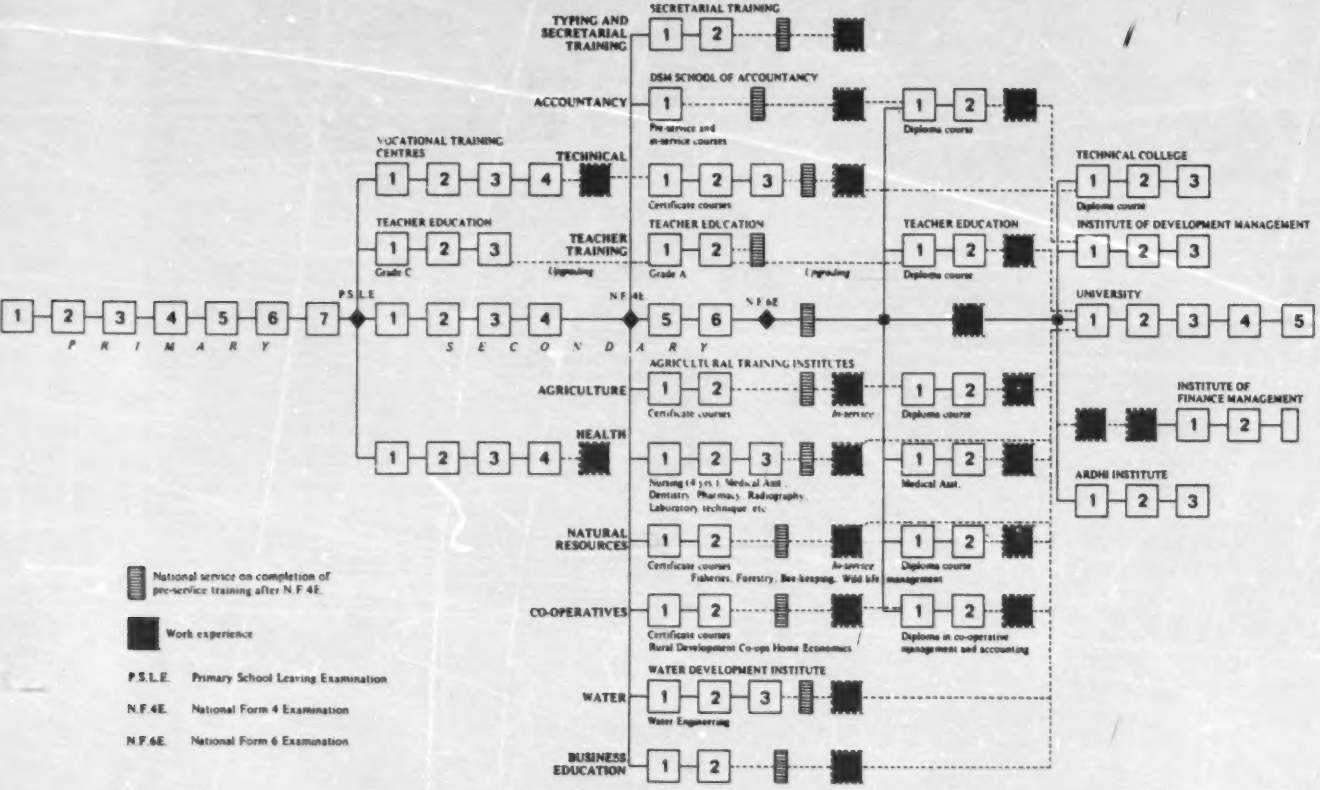
It is difficult to compare the structure of education in a developing country with that of the Federal Republic of Germany. Some developing countries have made important changes in their educational structure by introducing work experience as a prerequisite for entrance to a higher level of school and by opening up "blind alleys". The educational structure of Tanzania is a good example : Figures 2 and 3 show the system at Independence and the most recent structure.

igure 2. Structure of education in Tanzania, 1974 (excluding Health Services Training)



ource: United Republic of Tanzania, Preliminary Education Projects for the Third Plan, Paris, Unesco, 1974.

Figure 3. Most recent structure of education in Tanzania



Source: IIEP study on Tanzania.

In the Federal Republic of Germany enrolment in higher education institutions, including engineering colleges and short-cycle institutions, has increased from 534,000 in 1970 to 914,000 in 1977. This gives an average annual increase of 8.0 per cent as compound rate (see chapter 3, Table 8). The annual percentage increase is lower than that in many developing countries (see Table 45). This is because most developing countries had to start from a much lower base in the field of higher education and had to accelerate their expansion. The reasons for expansion are more economic than social in the developing countries, although the social pressure is increasing.

TABLE 45 Average Annual Percentage Increase in Enrolment in the Institutions of Higher Education in the Federal Republic of Germany and Selected Developing Countries during Recent Years.

Country /	Percentage
Federal Republic of Germany	9.5
India	10.2
Egypt	13.7
Sudan	10.3
Philippines	8.3
Tanzania	11.0

In the Federal Republic of Germany, as well as in many developing countries, the opportunities in well-being increase with increased education. The characteristics of well-being are defined as economic prosperity through increased and better employment opportunities, social prestige, reduced manual and increased intellectual activities.

One specialty of the increased enrolment in higher education in the Federal Republic of Germany is that a large number of students are coming from branches other than the academic secondary track and the enrolment rate for higher education in the Federal Republic of Germany is much higher than in all the developing countries, except the Philippines where the difference is not that significant. (see Table 46).

TABLE 46 Enrolment Ratio for Higher Education (Total Enrolment in Comparison with Total Population in the Corresponding Age Group).

Country	Ratio
Federal Republic of Germany	20.2
India	5.8
Egypt	14.3
Philippines	20.6
Sudan	1.4
Tanzania	0.2

Source: Unesco Statistical Yearbook 1978/79.

One interesting feature of the higher education structure in the Federal Republic of Germany is that although the prerequisite for admission to the vocational colleges (Fachhochschulen) - unlike the university level institutions - is not to complete the academic track of secondary education, their graduates are entitled to admission to university level institutions in their respective fields of study. Another characteristic, similar to that in many developing countries, is that enrolment in vocational schools increased at a much lower rate than that in general academic schools. The proportion of students in arts-based and science-based subjects in the Federal Republic of Germany is 56.5 per cent, the remainder being in science-based subjects. Comparative figures vary in most developing countries; this can be seen from those given in Table 47.

TABLE 47 Percentage of Science-based Students in the Higher Education System

Country	Percentage
Federal Republic of Germany	43.5
India	26.4
Egypt	39.5
Philippines	20.0
Sudan	60.0
Tanzania	60.0

The proportion of engineering students at higher level (18.7 per cent) is strikingly high in comparison with many developing countries. However, the proportion of humanities students has been decreasing since 1975. This field, the main supplier of teachers, is becoming less and less popular because of the diminishing prospects for the teaching profession at primary and secondary schools where, for demographic reasons, enrolment is decreasing.

The proportion of female students in the Federal Republic of Germany was 34.4 per cent of total enrolment in higher education. Only one out of fourteen engineering students was a girl. In contrast, nearly one out of two agricultural students was a girl - a number remarkably higher in the Federal Republic of Germany than in any developing country. While in most developing countries the majority of female students are found in arts-based fields, this is not the case in the Federal Republic of Germany where the proportion of female students in humanities, economics or social sciences, and also in music and fine arts, is either almost equal to that of the boys or less.

In the Federal Republic of Germany's higher education system there are a substantial amount of programmes in short-cycle courses, whereas in most developing countries short-cycle programmes have yet to be developed. These courses, for reasons to be elaborated later, are popular with employers. Except in the case of Tanzania and very few other developing countries is the proportion of "adult" students in universities less than that in the Federal Republic of Germany.

Another feature of the labour force is that more than two-thirds of the university graduates are employed in the public sector. This situation is the same as in most developing countries.

As regards salary structure, the Federal Republic of Germany has much less disparity between salaries and different levels of education. The ratio of the monthly income of a university graduate and a school leaver without completion of any vocational training is of the order of 2.6, whereas this ratio is 10 for India, 4 for Tanzania and 5 for the Sudan[1].

The proportion of college-trained manpower in the labour force is on an upward trend in the Federal Republic of Germany, as in the developing countries. An interesting feature is that this proportion is noted to be almost the same in some developing countries. In the Federal Republic of Germany the 1978 percentage was 5.3, whereas in the Philippines and Egypt the percentages are 5.0 and 5.2 respectively[2].

The total number of university graduates employed in the labour force increased by 39 per cent in the decade 1961-70: an average annual growth rate of 1.39 per cent; a modest figure in comparison with the economic growth rate. Since then, however, the number has increased more rapidly.

The effects of this increased supply of graduates have been summarized in chapter 8, as follows:

> "The increase in the number of graduates could: (a) have a feedback to the number of students, for example by lowering the expectations of secondary school students or by spurring actions to restrict admissions, (b) engender changes in higher education and its outcomes, for example changes in the quantitative distribution of different types of institutions and study courses, of the curricula, etc., (c) have an effect on the relationship between higher education and employment itself and thus the labour market prospects of graduates, for example in modifying the value of credentials, (d) lead to a change in the organization of work and the job rôles."

During the seventies, the employment situation of college graduates in the Federal Republic of Germany deteriorated for three reasons: (1) the main employer of graduates, i.e., the teaching profession, slowed down its expansion and had a lower absorption capacity; (2) in general, employers were reluctant to recruit highly qualified people; and (3) economic difficulties and reduction in the share of public expenditure. The number of graduates also increased at a higher rate, from 88,000 in 1972 to 117,000 in 1976. It is estimated that the number of graduates will increase to a level of more than 182,000 by 1985. and then level off. In 1978, four per cent of the unemployed in the country were university graduates, including short-cycle graduates. Although the unemployment rate for new university graduates has increased since 1973, the year of

[1] IIEP studies on Sudan, Tanzania and West Bengal.

[2] IIEP studies on the Philippines and Egypt.

the oil crisis, they still run less risk of unemployment than in most developing countries.

For example, in 1974, in the Sudan, the distribution of those unemployed over one year by educational level was as follows:

TABLE 48 The Distribution of those Unemployed Over One Year by Educational Level, Sudan,

Educational level	Percentage
Less than primary	30
Primary completed but less than secondary	53
Secondary completed and above	18

Source: ILO, Growth, Employment and Equity: A Comprehensive Strategy for the Sudan, 1976, p. 412.

In 1978, in the Federal Republic of Germany, it was estimated that one-fifth of unemployed college-trained persons had been without a job for a period of more than one year (see chapter 3, Table 17). It is believed that during the second or at most third year, almost all graduates find a job and that truly long-lasting unemployment is a rarity up to now. Similar evidence exists for developing countries studied by the IIEP.

The situation in developing countries is, however, different from that in the Federal Republic of Germany in that the unemployment situation in that country is a recent phenomenon, largely due to the oil crisis, which led to a slowing down of economic activities whereas the higher education system has been expanding. In developing countries the oil crisis had no direct effect but will have an indirect effect because of the economic recession on the industrialized world which, in turn, will affect the economic activities of the developing countries. However, the new terms of trade and efforts to indigenize industrial activities might continue to generate new employment in developing countries in the next decade. In the past the organized sectors of the developing economies were too small to absorb the number of graduates from universities, especially in the production sector, but the increased price of raw materials, better terms of trade, less dependence on oil and possibilities of exploiting new natural resources through indigenous means might offer new employment opportunities.

Many developing countries experienced the phenomenon of educational inflation during the sixties and seventies (such as in India, Philippines, and Egypt). The Federal Republic of Germany has experienced this phenomenon only recently. Many college graduates have been taking jobs which do not need college education.

HIGHER EDUCATION AND EMPLOYMENT IN THE FEDERAL REPUBLIC OF GERMANY AND SOME SELECTED DEVELOPING COUNTRIES: SOME CHARACTERISTICS

In the Federal Republic of Germany, as in the majority of developing countries (except the Philippines), higher education is mainly controlled by the government; 98 per cent of all students are enrolled in public institutions and do not pay any fees. As stated earlier, almost two-thirds of college graduates are also employed by the public sector. This means that the government has a very heavy responsibility, not only in providing higher education but also in providing individuals with careers once their higher education is completed. This automatically leads to finding ways of relating higher education to employment in a constitutional set-up which guarantees open access to higher education.

In respect of relating higher education to employment in the Federal Republic of Germany, one has to go back to that country's history of higher education in the sixties, after the Sputnik shock, and the research carried out on the economics of education which showed the need for a substantial increase in highly qualified manpower. In 1962, the Permanent Conference of the Ministers of Culture issued estimates of manpower requirements pointing to the need for expansion in higher education. At the same time the social rôle of education was emphasized and research showed the social disparity in higher education, which could be reduced only by expanding opportunities for higher education.

The growth rates of expenditure on higher education from 1969 surpassed that of the overall educational expenditure. The Fachhochschulen as well as the comprehensive universities were established in the early seventies. In 1970, the federal government issued a report emphasizing equality of opportunity in the field of education and individual advancement. It also demanded the removal of enrolment restrictions in higher education and specified that after one year of waiting at most all qualified applicants should be able to enroll in the field of their choice.

However, doubts started to be expressed in respect of the employability of the graduates. The financial burden for the state was also a problem. Employers' representatives started to warn about the danger of the unemployment problem. Studies were made identifying the problems of social selection and attitudes of students in a situation of over-supply of graduates and loss of the benefits traditionally accrued by educated individuals. However there was a group supporting the expansion policy for the sake of individual development, democratization of society - a society offering education new tasks to perform, desirability of upgrading the level of workers and a change in job rôles by the graduates.

Economic difficulties made the planners more cautious about the financing of higher education and new facilities were to be built, but at a slower pace than enrolment even if it meant overcrowding existing ones, until the demographic factors automatically reduced the number of students by the nineties. Although the Constitution gives everyone the right to choose freely their profession, workplace and institution of education, restricted admission had already been practised in medicine since 1963. A compromise between the open-access policy and a restricted-admission policy based on financial and manpower notions was achieved

in 1972 through the decision on "numerus clausus" by the Federal Constitutional Court that restricted admission was justified only provided the existing facilities were utilized to the fullest extent; other necessary government tasks would suffer too much from the financial burden of higher education and the development of higher education would contradict manpower requirements, as far as these could be clearly determined.

Strict regulations on the utilization of capacity of institutions were imposed because the Court allowed application of numerus clausus provided existing facilities were utilized to the fullest extent. An unprecedented number of requirement forecasts were launched to decide on "manpower notions". In 1973, quantitative and structural planning of the education system was introduced and extended to the year 1985. The Framework Act for Higher Education of 1975/76 (see chapter 5) set the goal of relating university education to career preparation. The non-cognitive aspects of higher education were less emphasized, contrary to past practice in many developing countries.

Now it is also understood that ordinary information about the demand and supply of graduates would not serve any purpose in adjusting the higher education system to meet the economic needs, so impressive campaigns are organized to lower the aspirations of graduates in respect of the labour market. In the Federal Republic of Germany, although equality of opportunity is stressed as a policy, practical arrangements do not allow it to be practised smoothly because in the open-access system educational prerequisites still prevail, limiting the accessibility for the disadvantaged groups. Numerus clausus reduces that possiblity further in a country like India, where a special scholarship system, a regional language as the medium of instruction and reserved places have been used as instruments for democratization. But even with these instruments, a developing country with a small base of lower level education cannot achieve equality of opportunity to the extent that the Federal Republic of Germany can with a large base of lower level education.

The Framework Act for Higher Education called for regulations to:

- prevent students from practising a Parkstudium (waiting time before enrolment in the subject of the first choice spent in another field of study);
- reduce the length of study by means of introducing a fixed time span (Regelstudienzeit) in which studies must be completed;
- increase short-cycle courses.

Emphasis on short-cycle courses and corresponding enrolment increase did not materialize. Neither the students nor the employers found them attractive, a problem very often faced in developing countries. Whenever an attempt has been made to institutionalize vocational education its acceptability among the employers has diminished. According to them, occupational experience preceding the semi-professional education is appreciated. The employers prefer to train the semi-educated individuals on the job and they would like to co-operate with the institutions of higher education in providing their students

with work experience. This is, perhaps, because the employers can manipulate the employees who, due to lack of formal credentials, have lower expectations regarding the labour market. On-the-job training also makes them specially suited to the peculiarities of working life. Partly for the same reason, comprehensive universities did not become very popular.

In the seventies, the institutions of higher education were "politicized" to the extent that students and staff were allowed to participate in the decision-making process. Overt participation in politics was strongly disliked by employers and this affected the recruitment of graduates from certain institutions of higher education. Several agencies made further pessimistic forecasts about the mismatch between demand and supply of graduates. Restrictions on the number of places severely increased the mismatch between applicants and those admitted. Competition for higher education was increasing at an alarming rate. In the second half of the seventies, the issue of social justice once more gained ground. All the political parties as well as major planning and advisory groups, employers and trade unions and most of the bodies and groups representing the interest of institutions of higher education, their staff and students, agreed that a policy of "opening up of universities" (Offnung der Hochschulen) ought to be chosen, reducing restrictions on admission as well as accepting temporary overcrowding of the institutions of higher education. Doors of universities were opened again and to a wider extent for prospective candidates. The stagnation of the enrolment ratio supported this flexibility. A broader view of the manpower approach, including such characteristics as utilization of manpower, substitution of education and occupation and use of participation rates, and consideration of attitudes and expectations among the graduates and employers, allowed a slackening in the rigidity of admission.

It was appreciated that graduate employment was a problem, not only for the graduates but also for society, and necessary measures had to be taken to deal with it. It was noted that prolonged study by an individual cost society less than having the individual outside the school system and unemployed. Proposals were made for co-ordinated action on changing the recruitment practices, career and remuneration patterns, setting up emergency programmes, financing new tasks for graduates, curricular reforms taking into account the needs of the economy and the reorganization of the structure of higher education (Fachhochschulen and the university) in order to adjust to an oversupply of graduates, thereby accepting a higher intake rate in the institutions of higher education.

This compromise is an important lesson for the developing countries beset with the problem of graduate unemployment. Strict application of manpower needs and employability of graduates with the objective of maximum productivity may have to give in to social pressure and other social criteria. The process of change in attitude towards the adjustment of education to employment is worth noting.

Starting with the expansion-oriented policy for meeting economic needs for skills, reverting to a strict admission policy based on manpower and financial characteristics and then slackening this rigidity shows the concern of the decision-makers in higher education to relate its development with the changing expectations and needs of the society. In many developing countries, such concern has yet to be demonstrated.

In the Federal Republic of Germany policies in higher education have been formulated with some rational basis, although due to conflicting theories, results and ideas it was difficult to fully justify the acceptance of one policy or another at a particular point in time. Although the country has a free market economy, it has not ignored the usefulness of manpower forecasts as one of the bases for the development of its higher education. In spite of the limitations of these forecasts, the methods of manpower forecasting used in the Federal Republic of Germany and the research carried out on higher education and employment have some interesting implications and usefulness for researchers in developing countries.

This leads us to the discussion on these methods and the research results described in the study.

REQUIREMENT FORECASTS AND RESEARCH ON HIGHER EDUCATION AND EMPLOYMENT IN THE FEDERAL REPUBLIC OF GERMANY AND SOME OF THE DEVELOPING COUNTRIES

We have mentioned before the impact that research in the early sixties on the economics of education had on the expansion of higher education in the Federal Republic of Germany. Economic criteria have also played an important rôle in the expansion of higher education in the developing countries, as detailed elsewhere[1]. Whereas in the developing countries shortage of highly qualified manpower played the more important economic rôle, in the Federal Republic of Germany comparison with other industrialized countries in economic terms influenced such expansion.

A positive correlation of the enrolment ratio in the institutions of higher education and the GNP per capita sensitized decision-makers in several countries to expand higher education. In the early seventies, the manpower forecasts were based on the labour force data obtained from the 1961 census. Changes in the distribution of the labour force according to occupational groups were extrapolated following the last intercensal trend, assuming however that the proportion of university graduates in each occupation group remained the same. Some other forecasts took into account the socio-economic factors of different regions. All these forecasts predicted an oversupply of graduates in the eighties.

On the basis of the cunsus data in 1970, a large number of manpower forecasts were made in the mid- and late seventies. The approaches followed were different from those of the early seventies and took account of many of their limitations. Some of them modified the classical approach marginally, others summarized employers' opinions on qualified manpower requirements, others relied on international comparison in the supply of professional services, some estimated only potentials of upgrading, while others analysed possible far-reaching qualitative changes in the economy, their effects on the labour market and the consequent implications for higher education. The references

[1] IIEP studies on Sudan, Zambia, Tanzania and the Philippines.

cited in chapter 6 can provide important and useful information on these different methods. The approach followed differed from the traditional manpower forecasting approach by:

- proceeding from various political objectives as regards to education, labour market and economy, and presenting corresponding models of the consensus expected in terms of demand and supply of graduates,
- incorporating surveys on employers' views as regards to the present utilization or future demand for highly qualified manpower,
- estimating the possible range of requirements due to potentials of flexibility on the part of the employers and of the labour force.

The conclusions derived had something in common in that many forecasts predicted an oversupply of graduates if the present views about the utilization of highly qualified manpower prevailed. However, if proper emphasis were to be given to the substitution processes between education and occupation, if recruitment policies were adjusted, and if efforts were made to utilize the additional supply of high level manpower, then one would not face serious friction on the labour market.

One interesting finding of these studies is that the enrolment rates, on which the estimation of oversupply had been made, went down in the seventies, so that these are over-estimated and can be corrected if based on more recent information. Another finding is that unskilled and semi-skilled labour will be in short supply whereas there will be a surplus of skilled labour and college graduates. Still another study suggests programmes for creating direct employment for about 900,000 college graduates and indirect employment for 300,000 to assure full employment in 1990[1].

The "absorption approach", which focusses on finding the conditions under which an occupation system can absorb a growing number of graduates and identifying the implications of these conditions on the recruitment practices, occupational structure and the occupational rôles, seems to be very useful for decision-makers in higher education in developing countries. Although this approach has been applied to only a few fields of study in the Federal Republic of Germany, the method is applicable to other fields.

In this approach the substitution process plays an important rôle. This phenomenon of substitution in the face of an oversupply of graduates, coupled with the determinants of occupational flexibility, has led to the "flexibility approach" in developing higher education. This approach is based on "latent substitution", measured by questioning the employers about the extent to which jobs in their area of responsibility could be carried out by persons having a different training and educational level to those presently employed. "Realized substitution" is measured by inquiring into the predecessor's and successor's training. Manpower forecasts could take into account this information. This approach can give indications as to ways in which training could be changed to make graduates

[1] Wolfgang Bierter et al., op. cit.

more flexible in regard to employment and which subjects could have more students because of their substitution potential. The IIEP research on higher education and employment also emphasized the usefulness of this approach. Table 49, based on a survey of 576 graduates in the Sudan, shows the differences in the substitution potentials of various subjects. Similar data are available for Tanzania, Zambia, the Philippines and Egypt. What emerges from this information is that the labour markets in different countries are flexible to a varying extent in the same field of study, in the same way that a given field of study is flexible to a varying extent in different countries in respect of employment. However, as early as 1975, the IIEP noted the importance of this phenomenon in adjusting higher education to employment.

The "qualification utilization" approach analyses strategies of enterprises for utilization of manpower supplied by the internal labour market or the education system. This approach makes it clear that there is much more flexibility for enterprises to utilize the training than is usually perceived. This is indirectly supported by the IIEP study in Poland, which shows that a close correspondence between specialization and occupation does not automatically lead to better utilization of training (see Table 50). The utilization approach has also received attention in some developing countries studied by the IIEP to identify areas where matching is more prominent than others. This is shown in Table 51, which deals with the case of Zambia and is based on a survey of 721 graduates.

The approach of technological development, rationale of the socio-economic system and organization of work analyses the conflict of the employers' interest in maximizing profit through recruitment of less educated labour with the technological need for highly qualified manpower, and its effect on polarization in the structure of qualification of the labour force. The research results show that the employers' complaints of shortage of skilled labour are not necessarily true but a reflection of their vested interest in retaining the apprenticeship training. This at least justifies the concern of having the employers share the problem of oversupply of graduates.

The final approach stresses the selective or status function of education and suggests that the political decision-making process, requirement notions, recruitment strategies, etc., have legitimized the maintenance of social hierarchy.

All these approaches have some validity, but none of them are completely perfect and applicable to a developing country without local adaptation. Where the Federal Republic of Germany is concerned, all this research has contributed to the reinforcement of the limitation of the manpower approach to educational planning, has emphasized the rôle of career preparation for the system of higher education and has broadened the scope of the relationship between higher education and employment from purely quantitative aspects to qualitative aspects, including the relationship between content of education and content of work.

TABLE 49 Percentage of Graduates in Various Professions According to their Specialization, Sudan

Specialization \ Profession	Natural scientist	Engineer	Social scientist	Liberal profession	Health profession	Teacher	Business-man/Manager	Agricul-turist	Lawyer	Others
Natural Science	100.0	2.08	0	0	0	8.16	2.04	6.45	0	0
Engineering	0	93.76	0	0	0	4.08	0	0	0	0
Social sciences	0	2.08	78.31	2.27	0	6.12	6.12	0	0	24.14
Humanities & Arts	0	0	15.66	90.81	0	28.57	2.04	0	0	41.38
Health	0	0	0	0	100.0	0	0	0	0	0
Education & Teacher training	0	0	1.21	2.27	0	53.07	0	0	0	0
Business & Commerce	0	0	3.61	0	0	0	87.76	0	0	6.90
Agriculture	0	2.06	0	0	0	0	0	93.55	0	3.45
Law	0	0	0	0	0	0	0	0	100.0	0
Others	0	0	1.21	4.55	0	0	2.04	0	0	24.14

Source: IIEP study on the Sudan

TABLE 50 Assessment of Extent to which Training is Utilized Related to Consistency of Work Content with Study Content, Poland

Consistency of work with study course and specialization	Knowledge acquired: Adequate to job performed %	Insufficiently used %	Required supplementing %
Consistent with specialist studies	33.3	38.0	29.7
On the whole consistent with specialist studies	20.2	54.0	27.3
On the whole not consistent with specialist studies	16.4	57.9	27.6
Not consistent with specialist studies but consistent or consistent on the whole with study course	15.4	56.2	29.6
Not consistent with either	7.5	59.5	29.8

Source: IIEP study on Poland.

TABLE 51 Usefulness of Education Received in Performing Present Job, Zambia.

Subject	Very useful %	Useful %	Not useful %
Natural sciences	60.24	34.94	4.82
Engineering	76.30	21.39	2.31
Social science	70.17	27.31	2.52
Health/Medicine	83.87	16.13	-
Business/Commerce	70.69	25.86	3.45
Agriculture	82.86	17.14	-
Law	88.89	8.89	2.22

Source: IIEP study on Zambia

At this stage it would be relevant to describe briefly the IIEP's research in the field of higher education and employment for some developing countries.

THE IIEP EXPERIENCE IN RESEARCH ON HIGHER EDUCATION AND EMPLOYMENT

The aim of this project was to relate the development of higher education within a country with the changing needs of the labour market in both quantitative and qualitative terms, so as to provide data and criteria for the formulation of admission policy to higher education and to reduce the mismatch between the types of training offered by the institutions and the types of qualifications needed by the labour market. In the process, attention was also paid to regional and social disparities, with the aim of obtaining a better knowledge of the operation of the higher education system and labour market.

The project used two approaches : (i) country case studies, and (ii) technical monographs or papers. The country studies undertaken examined the quantitative aspects of the development of higher education, namely the presumptive pattern of employability and the supply of graduates, in combination with the qualitative aspects of such development, namely attitudes and expectations of students, graduates and employers as measured through questionnaire surveys. These surveys allowed the project to contribute to the creation of a national information system for use by national decision-makers in choosing the directions to be taken for the development of higher education. The technical monographs took particular problems of interest to educational planners (e. g. , the rôle of socio-economic and educational variables in the salary structure) and attempted to analyse them on the basis of the national data collected in the case studies; the objective was to improve the methodology of higher educational planning in relation to the labour market.

The case-study approach, which was the core of the research project, has been applied to several countries : Sudan, Zambia, Tanzania, Poland, Philippines, Egypt, India (West Bengal), and Bangladesh.

The following are some of the important findings:

1. The educational composition of the labour force in a given country is to a large extent supply-determined.
2. When the educational structure of the labour force is supply-determined, forecasting future demands for high-level manpower is extremely difficult.
3. Even in cases of rapid university expansion, higher education graduates maintain their earnings advantage over other kinds of graduates.
4. General or non-technical graduates do as well, and sometimes better, in terms of labour market earnings, relative to vocational or technical course graduates.
5. The public sector might not be the wage leader; however, public sector pay-scales strongly influence student expectations and hence the social demand for higher education.
6. The economic returns to non-vocational subjects are often greater than the returns to technical subjects.

7. The incidence of unemployment among university graduates might be lower than that of other levels of education; it is not particularly pronounced among general course graduates.

8. Where employers use "education" as a screening device, there exists a productivity counterpart.

9. The social demand for higher education is mainly for professional career reasons.

10. A discriminatory fee-paying system might redress financing problems in higher education in developing countries while equalizing opportunities.

11. The majority of prospective students do not get any advice or satisfactory advice regarding their career plans.

12. Selection procedures for higher education are often in favour of the upper socio-economic groups.

13. In countries where there is a full employment policy, misallocation of graduates and under-utilization of their training poses problems.

Having stated briefly the research objectives, methodology and some findings for comparison with the situation in the Federal Republic of Germany, it would be useful to go into some details in respect of certain specific issues, namely the problem of transition of individuals from higher education to work, and compare the situation in the Federal Republic of Germany with that of some developing countries.

TRANSITION FROM HIGHER EDUCATION TO WORK

As regards organization of career information among students of higher education, the developing countries are far behind the Federal Republic of Germany. Although the organizational mechanism of career information seems to be quite satisfactory, the extent of real lack of information or "misinformation" among the students is quite high. In the context of the developing countries, similar problems exist. Surveys carried out in some developing countries by IIEP show the extent of dissatisfaction, although it is difficult to be precise in measuring the extent of efficiency of such information services[1].

As regards placement of graduates in the Federal Republic of Germany, the public employment system plays only a minor rôle, placing about 10 per cent of them. In view of the fact that more than two-thirds of the college graduates are employed by the public sector, it would seem that these placement services require considerable improvement. In the developing countries however the situation varies, although the public sector plays an important rôle. The percentage of graduates recruited through the public employment system in some selected countries is given in Table 52.

[1] IIEP studies on Sudan, Zambia and Tanzania.

TABLE 52 Percentage of Graduates Recruited through the Public Employment System

Country	Percentage
Sudan	36.0
Tanzania	72.0
Philippines	17.1
Egypt	35.1

As far as criteria for recruitment are concerned, although in the Federal Republic of Germany research information is scarce, it is observed (see chapter 7, Table 34) that employers think that personal impression carries more weight than academic record. Table 53 which gives figures for certain selected developing countries and the Federal Republic of Germany. It would appear that academic record is the most important criterion for recruitment in these developing countries and personal impression takes second or third place.

TABLE 53 The Rôle of Personal Impression and Academic Record in the Selection of Graduates for a Job

Country	Personal impression	Academic record
Sudan	2.5	2.8
Tanzania	2.3	2.7
Philippines*	3.3	3.8
Egypt	2.4	2.2
Federal Republic of Germany*	4.6	3.2

*On a 5-point scale, other countries on a 3-point scale.

In the Federal Republic of Germany the other important criteria used by employers include the institution attended by the graduates, age, social skills and value orientation. Another important aspect of the recruitment criteria is the graduate's past and present political beliefs as these are considered to assure the employee's loyalty towards "social order determined by the Constitution". Given the fact that a significant proportion of students prefer a planned economy and consider the society to be basically antagonistic, such a criterion may create problems in the near future.

Economic incentives appear less important to the prospective employee than other factors when taking a job. Surprisingly, similar evidence is available

for developing countries, too. In the Sudan, for example, only 50 per cent of graduates consider a good income as very important for accepting a job. In Tanzania "good income" ranks eleventh out of fourteen reasons for accepting a job.

In the Federal Republic of Germany a survey has been conducted on the students' attitudes towards the labour market and their future occupations. About half the students had concrete aims as regards future employment. Due to oversupply of graduates, nearly half the students believe that most graduates do have to take jobs not in tune with their expectations about the utilization of competences and about appropriate incomes.

Similar phenomena can be noted in the developing countries facing an oversupply of graduates. For example, the percentage of graduates in the Philippines and Egypt who waited more than a year to get a job were 17.16 per cent and 27.3 per cent respectively[1].

In respect of expected sector of employment in the Federal Republic of Germany (see chapter 8, Table 37) the students' specializations influence their future sector of employment expectations. We have stated earlier that less than one-third of the graduates are actually employed in the private sector. However, the majority of the engineering and economics graduates expect to be employed in the private sector. Fifteen per cent of the lawyers and 43 per cent of the medical graduates expect to be self-employed. The majority of the arts-based students (humanities, education and social sciences) expect to be employed in schools as teachers/researchers. In the public sector, on the contrary, expected occupations differ from the real situation, except in the case of law and medicine. Less than 30 per cent of the students in all other fields of studies expect to be employed in the public sector. The corresponding figures for some developing countries may be of interest, as given in Table 54.

TABLE 54 Expected Sector of Employment

Country	Government sector %	Private sector %
Sudan	78.0	17.0
Tanzania[1]	73.2	26.4
Zambia[1]	81.0	16.5
Egypt	55.9	25.0

[1] includes parastatals

It is interesting to note that the proportion of expected self-employed graduates is higher in the Federal Republic of Germany than in any developing country.

[1] IIEP studies on the Philippines and Egypt.

On the whole, the oversupply of graduates has made the transition of graduates from school to work more difficult, and the steps considered to rectify the situation in the Federal Republic of Germany are given in the following section.

HOW TO REDUCE THE PROBLEM OF MISMATCH BETWEEN THE SUPPLY OF THE HIGHER EDUCATION SYSTEM AND THE ABSORPTIVE CAPACITY OF THE LABOUR MARKET

Given the high supply of qualified manpower, we can observe a variety of ways to tackle the problems of a possible mismatch between the supply of the higher education system and the absorptive capacity of the labour market. Some of these are direct measures adopted by the government and by the employers; others have evolved in the occupation system, partly due to the pressure exerted by the graduates.

1. Since social demand for higher education cannot be controlled beyond a certain point, the amount of the scholarship grants was not increased in proportion to the students' rising cost of living. It was also difficult for students to get part-time jobs to finance their education. Financial problems deterred some prospective students, at least marginally.

2. The numerus clausus contributed indirectly to the students' changing aspirations. The pessimistic predictions and campaigns launched by many employers and politicians might have deterred many young people from enrolling at institutions of higher education.

3. There have been different directions to reduce the mismatch on the part of the higher education system: (a) institutional reform and curricular reform which would maximize hierarchy of quality and employability and contribute to reforms of the occupation system and society; (b) co-existence of a strong research-oriented higher education and a diversified system of higher education favouring "a disciplinary orientation for the typical courses at universities" through "the introduction of short-cycle courses at universities in addition to research-oriented long cycles at universities and vocational higher education at Fachhochschulen"; (c) a stronger orientation of higher education towards the needs of the labour market, having a clear-cut division of higher education between the university level education for research and for leading positions with high intellectual competences on the one hand, and higher vocational training on the other, strongly related to the occupation, especially in intermediate ranks but to some extent in higher ranks as well. These directions represent only a part of the variety of proposals for higher education reforms. The difficulties in finding a compromise amongst them are shown in the document entitled "22 Landmarks for Higher Education Reform", presented by the Federal Minister for Education and Science in 1978 (see chapter 8).

4. Substantial efforts have been made to open up new fields of studies and new jobs, e. g. ecology, city planning, information sciences, regional studies, etc.

5. On the basis of the Framework Act for Higher Education a commission for educational reform was established in 1978 to advance curricular reforms by

making them adaptable to changing career prospects, emphasizing relationship to practice and orientation towards fields of occupation, including changing attitudes of students. Flexibility of the content of education is to be examined also, basic knowledge being retained at the institutions of education which cover a substantial part of occupational preparation for in-service training and further education.

6. The concept of matching "credentials and jobs" is questioned with arguments such as: (a) the dynamics in the labour market require a shift in the traditional relationship between credentials and jobs and new graduates may have to start their careers at a different level to the old graduates (credentials carrying less weight); (b) graduates ought not necessarily to expect a reward for their educational accomplishments and employers ought not to rely on education in their recruitment and personnel policy. This argument was thought to increase absorption of graduates and/or to cause a decline in aspirations among students due to uncertainty of rewards; (c) processes of vertical substitution whereby additional graduates take over positions previously held by non-graduates.

7. Extension of the number of existing jobs for graduates, for example in the teaching profession or in social work.

8. Utilization of the additional supply for societal tasks which have so far been neglected, namely, innovations through research, increase in the quality of social work, health, press, preparation of political decision-making, counselling services, military, police, city planning, security of the work place, etc. This should be done by transferring "requirements" of the society to the "demand" of the labour market. In social terms, the cost of establishing new positions may compare favourably with the cost of unemployed graduates.

9. Upgrading the requirements of certain jobs, namely, social work, pre-school educators, press and supporting staff of politicians.

10. Adopting legal decisions or government initiatives to increase the employment of college-trained manpower in the private sector by taking steps such as improving the medical service for workers and anti-pollution measures through the provision of government subsidies.

11. Changes in the organization of work : a more "horizontal" division of labour between graduates' jobs and those not held previously by graduates.

For a developing country, the above would serve as no more than suggestions. The socio-economic and political conditions of the country would be the deciding factor on which way to move in adjusting the development of higher education with the employability of graduates. The ways to reduce the problem of mismatch between supply of the higher education system and the absorptive capacity vary in form and possible impact. They should not be understood as leading to some consistent policy.

It should be appreciated that there is a basic difference between the situation in the Federal Republic of Germany and that in most of the developing countries because for a long time, the developing countries had a very insignificant

organized sector capable of employing high-level manpower, even though the supply of high-level manpower was also limited. But the problem of unemployment has been there for ages. The acuteness of the problem cannot be ignored but it is not a sudden occurrence as in the case of the Federal Republic of Germany where, for almost three decades, there has been economic prosperity; it is always difficult to reduce the standard of living conditions, the more so when it is sudden. Whatever a country's economic and social set-up, the tasks for higher education planning given in chapter 9 are worth considering for reducing the gap between the world of higher education and the world of work.

However, in the Federal Republic of Germany, as in many of the developing countries, it is evident that the trend of expectations among citizens is to have employment as a basic right. The decision-makers of today have to make this an objective and adjust both the system of higher education and the labour market to achieve it. The fact that 20 per cent of the students in the Federal Republic of Germany prefer a planned economy for the country is an important warning signal for those who are thinking of the future higher education and employment of the country.

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The book

This study gives an account of the changing relationship of higher education and the labour market in the Federal Republic of Germany. Some characteristics of the country, such as a strong governmental influence on higher education, emphasis of specific qualifications as well as homogeneity of institutions within a binary structure of higher education, have led to a unique mixture of planning and market approach in higher education planning. The author describes structures and quantitative developments of the education and the occupation systems, the post-war history of higher education and employment, and the transfer from university to the employment system. Special emphasis has been given to the explanation of requirement forecasts and research on higher education and employment; in both respects, a variety of interesting approaches can be found in this country which have often been overlooked in the international debate, owing to language barriers.

Finally, the authors discuss in detail processes of adjustment to the higher supply of graduates in the seventies; in future, in their view, research and planning should, instead of just being concerned about a "mismatch", take into account the possible constructive effects of a discrepancy between demand and supply - for example, pressures to change the job rôles and the division of labour.

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